STIC-Biotech/ChemLib 83760

From: Chan, Christina
Sent: Tuesday, January 07, 2003 10:16 AM
To: Jiang, Dong; STIC-Biotech/ChemLib
Subject: RE: rush search request for 09/830,323

Importance: High

Please rush. Thanks Chris

Chris Chan
TC 1600 New Hire Training Coordinator and SPE 1644
308-3973
CM-1, 9B19

-----Original Message-----
From: Jiang, Dong
Sent: Monday, January 06, 2003 2:35 PM
To: Chan, Christina
Subject: rush search request for 09/830,323

Chris,
Could you please help me to get a rush search for the following request? The case is due this bi-week. Thank you very much.
Dong

****

Please search 1) SEQ ID NO:1

-issued
-commercial

Please send results on paper to Dong Jiang in 10D-08 (mail stop CM1-10D19). Thank you very much.

Dong Jiang (78243)
703-305-1345
U.S. Patent and Trademark Office
Art Unit 1646
dong.jiang@uspto.gov

10D 08

	TYPE OF SEARCH:	VENDOR/COST (where applic.)
Searcher:_____	NA Sequences:_____	STN:_____
Phone:_____	AA Sequences:_____	DIALOG:_____
Location:_____	Structures:_____	Questel/Orbit:_____
Date Picked Up: 1/7	Bibliographic:_____	DRLink:_____
Date Completed: 1/8	Litigation:_____	Lexis/Nexis:_____
Searcher Prep/Review:_____	Full text:_____	Sequence Sys.:_____
Clerical:_____	Patent Family:_____	WWW/Internet:_____
Online time:_____	Other:_____	Other (specify):_____

CM1-10D08
Mail stop: CM1-10D19

Searcher:_____
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Location:_____
Date Picked Up:_____
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Clerical:_____
Online time:_____

TYPE OF SEARCH:
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Full text:_____
Patent Family:_____
Other:_____

VENDOR/COST (where applic.)
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Lexis/Nexis:_____
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WWW/Internet:_____
Other (specify):_____

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=> d his

     (FILE 'HOME' ENTERED AT 14:12:17 ON 08 JAN 2003)

     FILE 'MEDLINE, BIOSIS' ENTERED AT 14:12:23 ON 08 JAN 2003
L1           973 S PIOGLITAZONE
L2          2563 S GLP-1
L3             1 S L1 AND L2
L4          2163 S THIAZOLIDINEDIONE
L5           445 S L1 AND L4
L6           887 S ROSIGLITAZONE
L7             3 S L2 AND L4
L8             2 DUP REM L7 (1 DUPLICATE REMOVED)
L9             0 S L2 AND L6
L10            7 S (YAKUBU-MADUS, F?)/AU
L11            7 S (YAKUBU MADUS, F?)/AU
L12            5 DUP REM L11 (2 DUPLICATES REMOVED)
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-	17	(pioglitazone and GLP-1 and (administ$ combin$)).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 11:53
-	30	pioglitazone with GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 12:48
-	2	(pioglitazone with GLP-1).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 19:45
-	51	pioglitazone and GLP-1 and non adj insulin adj depend$	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 19:50
-	1	(pioglitazone with GLP-1 and non adj insulin adj depend$ and method).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 19:50
-	30	pioglitazone with GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 20:04
-	1	YAKUBUMADUS.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 20:03
-	0	(pioglitazone with GLP-1) and YAKUBUMADUS.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 20:03
-	36	pioglitazone same GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 20:08
-	48	(pioglitazone and GLP-1) same (administ$ combin$)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 20:07
-	8	pioglitazone same GLP-1 and synerg$	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 20:08
-	0	(pioglitazone and GLP-1).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 12:57
-	3	(combin$ and GLP-1).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/06 20:13
-	2	5705483.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:23
-	168	thiazolidinedione.ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:25
-	42	(thiazolidinedione and diabet$).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:26
-	558	pioglitazone	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:26

-	14	((thiazolidinedione and diabet$).ti.) and pioglitazone	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:35
-	90	pioglitazone and GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:30
-	1	thiazolidinedione.ti. and (pioglitazone and GLP-1)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:30
-	1	thiazolidinedione.ti. and GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:36
-	7678	jensen.in.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:36
-	3	jensen.in. and GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/07 19:36
-	12	(GLP-1 and diabet$).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 12:30
-	2	4287200.pn.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 12:50
-	252	thiazolidinedione and pioglitazone	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 13:16
-	14	pioglitazone.ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 12:57
-	4	pioglitazone.ti. and (thiazolidinedione and pioglitazone)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 13:16
-	558	pioglitazone	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 13:16
-	252	(pioglitazone) and (thiazolidinedione and pioglitazone)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 13:16
-	14	(pioglitazone) and pioglitazone.ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 13:52
-	14	pioglitazone.ti. and pioglitazone	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:33
-	315	rosiglitazone	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:34
-	83	rosiglitazone and GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:35
-	21	rosiglitazone same GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:39

-	0	(rosiglitazone and GLP-1).ti.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:35
-	17	(rosiglitazone and GLP-1).clm.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:36
-	16	rosiglitazone with GLP-1	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:43
-	17	rosiglitazone same GLP-1 same (combin$ adminster$)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/01/08 14:45

OM protein - protein search, using sw model

Run on: January 7, 2003, 16:23:39 ; Search time 10 Seconds
(without alignments)
56.855 Million cell updates/sec

Title: US-09-830-323-1
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 117078 seqs, 18951520 residues

Total number of hits satisfying chosen parameters: 117078

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Published_Applications_AA:*
1: /cgn2_6/ptodata/1/pubpaa/US08_NEW_PUB.pep:*
2: /cgn2_6/ptodata/1/pubpaa/PCT_NEW_PUB.pep:*
3: /cgn2_6/ptodata/1/pubpaa/US06_NEW_PUB.pep:*
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7: /cgn2_6/ptodata/1/pubpaa/PCTUS_PUBCOMB.pep:*
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9: /cgn2_6/ptodata/1/pubpaa/US09_NEW_PUB.pep:*
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14: /cgn2_6/ptodata/1/pubpaa/US60_PUBCOMB.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	9	US-10-125-255-1	Sequence 1, Appli
2	155	100.0	30	10	US-09-851-738-4	Sequence 4, Appli
3	155	100.0	30	10	US-09-805-507-4	Sequence 4, Appli
4	155	100.0	30	10	US-09-859-804-4	Sequence 4, Appli
5	155	100.0	30	10	US-09-982-978-4	Sequence 4, Appli
6	155	100.0	30	10	US-09-953-021B-4	Sequence 4, Appli
7	155	100.0	30	12	US-10-072-540A-4	Sequence 4, Appli
8	155	100.0	31	10	US-09-754-723-1	Sequence 1, Appli
9	155	100.0	31	10	US-09-420-785A-3	Sequence 3, Appli
10	155	100.0	31	10	US-09-876-388-2	Sequence 2, Appli
11	155	100.0	31	10	US-09-876-388-17	Sequence 17, Appl
12	155	100.0	31	10	US-09-876-388-27	Sequence 27, Appl
13	155	100.0	31	10	US-09-876-388-28	Sequence 28, Appl
14	155	100.0	31	10	US-09-851-738-3	Sequence 3, Appli
15	155	100.0	31	10	US-09-805-507-3	Sequence 3, Appli
16	155	100.0	31	10	US-09-859-804-3	Sequence 3, Appli
17	155	100.0	31	10	US-09-982-978-3	Sequence 3, Appli
18	155	100.0	31	10	US-09-953-021B-3	Sequence 3, Appli
19	155	100.0	31	12	US-10-072-540A-1	Sequence 1, Appli
20	155	100.0	36	10	US-09-851-738-2	Sequence 2, Appli
21	155	100.0	36	10	US-09-805-507-2	Sequence 2, Appli
22	155	100.0	36	10	US-09-859-804-2	Sequence 2, Appli
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24	155	100.0	36	10	US-09-953-021B-2	Sequence 2, Appli
25	155	100.0	37	10	US-09-420-785A-2	Sequence 2, Appli
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27	155	100.0	37	10	US-09-876-388-16	Sequence 16, Appl
28	155	100.0	37	10	US-09-876-388-25	Sequence 25, Appl
29	155	100.0	37	10	US-09-876-388-26	Sequence 26, Appl
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33	155	100.0	37	10	US-09-982-978-1	Sequence 1, Appli
34	155	100.0	37	10	US-09-953-021B-1	Sequence 1, Appli
35	151	97.4	31	10	US-09-876-388-29	Sequence 29, Appl
36	151	97.4	31	10	US-09-876-388-30	Sequence 30, Appl
37	151	97.4	31	12	US-10-072-540A-5	Sequence 5, Appli
38	143	92.3	28	10	US-09-851-738-6	Sequence 6, Appli
39	143	92.3	28	10	US-09-805-507-6	Sequence 6, Appli
40	143	92.3	28	10	US-09-859-804-6	Sequence 6, Appli
41	143	92.3	28	10	US-09-982-978-6	Sequence 6, Appli
42	143	92.3	28	10	US-09-953-021B-6	Sequence 6, Appli
43	143	92.3	29	10	US-09-851-738-5	Sequence 5, Appli
44	143	92.3	29	10	US-09-805-507-5	Sequence 5, Appli
45	143	92.3	29	10	US-09-859-804-5	Sequence 5, Appli

ALIGNMENTS

RESULT 1
US-10-125-255-1
; Sequence 1, Application US/10125255
; Patent No. US20020165342A1
; GENERAL INFORMATION:
; APPLICANT: Galloway, John A
; APPLICANT: Hoffmann, James A
; TITLE OF INVENTION: Glucagon-Like Insulinotropic Peptides, Compositions and Methods
; FILE REFERENCE: X-9332E
; CURRENT APPLICATION NUMBER: US/10/125,255
; CURRENT FILING DATE: 2002-04-17
; PRIOR APPLICATION NUMBER: 09/573,809
; PRIOR FILING DATE: 2000-05-18
; NUMBER OF SEQ ID NOS: 1
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 30
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: MOD_RES
; LOCATION: (30)..(30)
; OTHER INFORMATION: The arginine residue at position 30 is modified so as to replace
; OTHER INFORMATION: the terminal carboxyl group with an amine.
US-10-125-255-1

Query Match 100.0%; Score 155; DB 9; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 2
US-09-851-738-4
; Sequence 4, Application US/09851738
; Patent No. US20020055460A1
; GENERAL INFORMATION:
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Ehlers, Mario R.W.

```
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
;  TITLE OF INVENTION:  Ischemic and Reperfused Tissue
;  FILE REFERENCE: P03660US1
;  CURRENT APPLICATION NUMBER: US/09/851,738
;  CURRENT FILING DATE:  2001-05-09
;  PRIOR APPLICATION NUMBER: 09/302,596
;  PRIOR FILING DATE: 1999-04-30
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: mammalian
US-09-851-738-4

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  Best Local Similarity  100.0%;  Pred. No. 1.3e-16;
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RESULT 3
US-09-805-507-4
; Sequence 4, Application US/09805507
; Patent No. US20020098195A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/805,507
;  CURRENT FILING DATE:  2001-03-14
;  PRIOR APPLICATION NUMBER: 09/859,804
;  PRIOR FILING DATE: 2001-05-18
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-805-507-4

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  Best Local Similarity  100.0%;  Pred. No. 1.3e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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RESULT 4
US-09-859-804-4
; Sequence 4, Application US/09859804
; Patent No. US20020107206A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/859,804
;  CURRENT FILING DATE:  2001-05-18
;  PRIOR APPLICATION NUMBER: 60/205,239
;  PRIOR FILING DATE: 2000-05-19
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown Organism
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;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-859-804-4

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RESULT 5
US-09-982-978-4
; Sequence 4, Application US/09982978
; Patent No. US20020146405A1
; GENERAL INFORMATION:
;  APPLICANT: COOLIDGE, THOMAS R.
;  APPLICANT:  EHLERS, MARIO
;  TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
;  FILE REFERENCE: 089187/0395
;  CURRENT APPLICATION NUMBER: US/09/982,978
;  CURRENT FILING DATE:  2001-10-22
;  PRIOR APPLICATION NUMBER: 09/859,804
;  PRIOR FILING DATE: 2001-05-18
;  PRIOR APPLICATION NUMBER: 60/205,239
;  PRIOR FILING DATE: 2000-05-19
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Unknown Organism
;   FEATURE:
;   OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
;   OTHER INFORMATION: peptide
US-09-982-978-4

  Query Match            100.0%;  Score 155;  DB 10;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-16;
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 6
US-09-953-021B-4
; Sequence 4, Application US/09953021B
; Patent No. US20020147131A1
; GENERAL INFORMATION:
;  APPLICANT: Coolidge, Thomas L.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of Iscl
;  TITLE OF INVENTION:  Reperfused Skeletal Muscle Tissue
;  FILE REFERENCE: P03660US6
;  CURRENT APPLICATION NUMBER: US/09/953,021B
;  CURRENT FILING DATE:  2001-09-11
;  PRIOR APPLICATION NUMBER: 09/302,596
;  PRIOR FILING DATE: 1999-04-30
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-953-021B-4
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Query Match 100.0%; Score 155; DB 10; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.3e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 7
US-10-072-540A-4
; Sequence 4, Application US/10072540A
; Patent No. US20020123466A1
; GENERAL INFORMATION:
; APPLICANT: Hoffmann, James
; TITLE OF INVENTION: GLP-1 FORMULATIONS
; FILE REFERENCE: X-11368A
; CURRENT APPLICATION NUMBER: US/10/072,540A
; CURRENT FILING DATE: 2002-02-08
; PRIOR APPLICATION NUMBER: US 60/067,600
; PRIOR FILING DATE: 1997-12-05
; NUMBER OF SEQ ID NOS: 5
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
; LENGTH: 30
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: MOD_RES
; LOCATION: (30)..(30)
; OTHER INFORMATION: AMIDATION
US-10-072-540A-4

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Best Local Similarity 100.0%; Pred. No. 1.3e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 8
US-09-754-723-1
; Sequence 1, Application US/09754723
; Patent No. US20010002394A1
; GENERAL INFORMATION:
; APPLICANT: EFENDIC, Suad
; APPLICANT: GUTNIAK, Mark
; APPLICANT: KIRK, Ole
; TITLE OF INVENTION: Use Of A Peptide
; FILE REFERENCE: 3745.234-US
; CURRENT APPLICATION NUMBER: US/09/754,723
; CURRENT FILING DATE: 2001-06-21
; PRIOR APPLICATION NUMBER: US 08/842,121
; PRIOR FILING DATE: 1997-04-23
; PRIOR APPLICATION NUMBER: US 08/295,913
; PRIOR FILING DATE: 1994-10-13
; PRIOR APPLICATION NUMBER: PCT/DK93/00099
; PRIOR FILING DATE: 1993-03-19
; PRIOR APPLICATION NUMBER: DK 0363/92
; PRIOR FILING DATE: 1992-03-19
; NUMBER OF SEQ ID NOS: 1
; SOFTWARE: FastSEQ for Windows Version 4.0
; SEQ ID NO 1
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo Sapien
; FEATURE:
; NAME/KEY: VARIANT
; LOCATION: (1)...(31)
; OTHER INFORMATION: Xaa = Any Amino Acid

US-09-754-723-1

Query Match 100.0%; Score 155; DB 10; Length 31;
Best Local Similarity 100.0%; Pred. No. 1.3e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 9
US-09-420-785A-3
; Sequence 3, Application US/09420785A
; Patent No. US20010010923A1
; GENERAL INFORMATION:
; APPLICANT: MORTENSEN, UFFE
; APPLICANT: OLESEN, KJELD
; APPLICANT: STENNICKE, HENNING
; APPLICANT: SORENSEN, STEEN B.
; APPLICANT: BREDDAM, KLAUS
; TITLE OF INVENTION: MODIFIED CARBOXYPEPTIDASE
; FILE REFERENCE: 089187/0109
; CURRENT APPLICATION NUMBER: US/09/420,785A
; CURRENT FILING DATE: 1999-10-19
; NUMBER OF SEQ ID NOS: 4
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: VARIANT
; LOCATION: (31)
; OTHER INFORMATION: C-terminal amino acid which serves as a leaving
; OTHER INFORMATION: group, typically, an uncharged amino acid side
; OTHER INFORMATION: chain, preferably alanine
US-09-420-785A-3

Query Match 100.0%; Score 155; DB 10; Length 31;
Best Local Similarity 100.0%; Pred. No. 1.3e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 10
US-09-876-388-2
; Sequence 2, Application US/09876388
; Patent No. US20020049153A1
; GENERAL INFORMATION:
; APPLICANT: Bridon, Dominique P.
; APPLICANT: L'Archeveque, Benoit
; APPLICANT: Ezrin, Alan M.
; APPLICANT: Holmes, Darren L.
; APPLICANT: Leblanc, Anouk
; APPLICANT: St. Pierre, Serge
; TITLE OF INVENTION: LONG LASTING INSULINOTROPIC PEPTIDES
; FILE REFERENCE: 500862001610
; CURRENT APPLICATION NUMBER: US/09/876,388
; CURRENT FILING DATE: 2001-09-24
; PRIOR APPLICATION NUMBER: 09/623,618
; PRIOR FILING DATE: 2000-09-05
; PRIOR APPLICATION NUMBER: PCT/US00/13563
; PRIOR FILING DATE: 2000-05-17
; PRIOR APPLICATION NUMBER: 60/159,783
; PRIOR FILING DATE: 1999-10-15
; PRIOR APPLICATION NUMBER: 60/134,406
; PRIOR FILING DATE: 1999-05-17
; NUMBER OF SEQ ID NOS: 35
; SOFTWARE: PatentIn Ver. 2.1

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; SEQ ID NO 2
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Peptide
US-09-876-388-2

  Query Match            100.0%;  Score 155;  DB 10;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
US-09-876-388-17
; Sequence 17, Application US/09876388
; Patent No. US20020049153A1
; GENERAL INFORMATION:
;  APPLICANT: Bridon, Dominique P.
;  APPLICANT:  L'Archeveque, Benoit
;  APPLICANT:  Ezrin, Alan M.
;  APPLICANT:  Holmes, Darren L.
;  APPLICANT:  Leblanc, Anouk
;  APPLICANT:  St. Pierre, Serge
;  TITLE OF INVENTION: LONG LASTING INSULINOTROPIC PEPTIDES
;  FILE REFERENCE: 500862001610
;  CURRENT APPLICATION NUMBER: US/09/876,388
;  CURRENT FILING DATE:  2001-09-24
;  PRIOR APPLICATION NUMBER: 09/623,618
;  PRIOR FILING DATE: 2000-09-05
;  PRIOR APPLICATION NUMBER: PCT/US00/13563
;  PRIOR FILING DATE: 2000-05-17
;  PRIOR APPLICATION NUMBER: 60/159,783
;  PRIOR FILING DATE: 1999-10-15
;  PRIOR APPLICATION NUMBER: 60/134,406
;  PRIOR FILING DATE: 1999-05-17
;  NUMBER OF SEQ ID NOS: 35
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 17
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Peptide
US-09-876-388-17

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  Best Local Similarity  100.0%;  Pred. No. 1.3e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 12
US-09-876-388-27
; Sequence 27, Application US/09876388
; Patent No. US20020049153A1
; GENERAL INFORMATION:
;  APPLICANT: Bridon, Dominique P.
;  APPLICANT:  L'Archeveque, Benoit
;  APPLICANT:  Ezrin, Alan M.
;  APPLICANT:  Holmes, Darren L.
;  APPLICANT:  Leblanc, Anouk
;  APPLICANT:  St. Pierre, Serge
;  TITLE OF INVENTION: LONG LASTING INSULINOTROPIC PEPTIDES
;  FILE REFERENCE: 500862001610
;  CURRENT APPLICATION NUMBER: US/09/876,388
;  CURRENT FILING DATE:  2001-09-24
;  PRIOR APPLICATION NUMBER: 09/623,618
;  PRIOR FILING DATE: 2000-09-05
;  PRIOR APPLICATION NUMBER: PCT/US00/13563
;  PRIOR FILING DATE: 2000-05-17
;  PRIOR APPLICATION NUMBER: 60/159,783
;  PRIOR FILING DATE: 1999-10-15
;  PRIOR APPLICATION NUMBER: 60/134,406
;  PRIOR FILING DATE: 1999-05-17
;  NUMBER OF SEQ ID NOS: 35
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 27
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Peptide
;   NAME/KEY: MOD_RES
;   LOCATION: 31
;   OTHER INFORMATION: Xaa represents Lys(E-MPA)-NH2-4TFA and where "E" represents Epsi
US-09-876-388-27

  Query Match            100.0%;  Score 155;  DB 10;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 13
US-09-876-388-28
; Sequence 28, Application US/09876388
; Patent No. US20020049153A1
; GENERAL INFORMATION:
;  APPLICANT: Bridon, Dominique P.
;  APPLICANT:  L'Archeveque, Benoit
;  APPLICANT:  Ezrin, Alan M.
;  APPLICANT:  Holmes, Darren L.
;  APPLICANT:  Leblanc, Anouk
;  APPLICANT:  St. Pierre, Serge
;  TITLE OF INVENTION: LONG LASTING INSULINOTROPIC PEPTIDES
;  FILE REFERENCE: 500862001610
;  CURRENT APPLICATION NUMBER: US/09/876,388
;  CURRENT FILING DATE:  2001-09-24
;  PRIOR APPLICATION NUMBER: 09/623,618
;  PRIOR FILING DATE: 2000-09-05
;  PRIOR APPLICATION NUMBER: PCT/US00/13563
;  PRIOR FILING DATE: 2000-05-17
;  PRIOR APPLICATION NUMBER: 60/159,783
;  PRIOR FILING DATE: 1999-10-15
;  PRIOR APPLICATION NUMBER: 60/134,406
;  PRIOR FILING DATE: 1999-05-17
;  NUMBER OF SEQ ID NOS: 35
;  SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 28
;   LENGTH: 31
;   TYPE: PRT
;   ORGANISM: Artificial Sequence
;   FEATURE:
;   OTHER INFORMATION: Description of Artificial Sequence: Synthetic
;   OTHER INFORMATION: Peptide
;   NAME/KEY: MOD_RES
;   LOCATION: 31
;   OTHER INFORMATION: Xaa represents Lys(E-AEEA-AEEA-MPA)-NH2-4TFA and where "E" repre
US-09-876-388-28

  Query Match            100.0%;  Score 155;  DB 10;  Length 31;
  Best Local Similarity  100.0%;  Pred. No. 1.3e-16;
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Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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RESULT 14
US-09-851-738-3
; Sequence 3, Application US/09851738
; Patent No. US20020055460A1
; GENERAL INFORMATION:
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Ehlers, Mario R.W.
; TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
; TITLE OF INVENTION: Ischemic and Reperfused Tissue
; FILE REFERENCE: P03660US1
; CURRENT APPLICATION NUMBER: US/09/851,738
; CURRENT FILING DATE: 2001-05-09
; PRIOR APPLICATION NUMBER: 09/302,596
; PRIOR FILING DATE: 1999-04-30
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 3
; LENGTH: 31
; TYPE: PRT
; ORGANISM: mammalian
US-09-851-738-3

Query Match 100.0%; Score 155; DB 10; Length 31;
Best Local Similarity 100.0%; Pred. No. 1.3e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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RESULT 15
US-09-805-507-3
; Sequence 3, Application US/09805507
; Patent No. US20020098195A1
; GENERAL INFORMATION:
; APPLICANT: COOLIDGE, THOMAS R.
; APPLICANT: EHLERS, MARIO
; TITLE OF INVENTION: TREATMENT OF ACUTE CORONARY SYNDROME WITH GLP-1
; FILE REFERENCE: 089187/0395
; CURRENT APPLICATION NUMBER: US/09/805,507
; CURRENT FILING DATE: 2001-03-14
; PRIOR APPLICATION NUMBER: 09/859,804
; PRIOR FILING DATE: 2001-05-18
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: PatentIn Ver. 2.1
; SEQ ID NO 3
; LENGTH: 31
; TYPE: PRT
; ORGANISM: Unknown Organism
; FEATURE:
; OTHER INFORMATION: Description of Unknown Organism: Mammalian GLP
; OTHER INFORMATION: peptide
US-09-805-507-3

Query Match 100.0%; Score 155; DB 10; Length 31;
Best Local Similarity 100.0%; Pred. No. 1.3e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Search completed: January 7, 2003, 16:25:27
Job time : 10 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: January 7, 2003, 16:19:19 ; Search time 36 Seconds
(without alignments)
111.042 Million cell updates/sec

Title: US-09-830-323-1
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 908470 seqs, 133250620 residues

Total number of hits satisfying chosen parameters: 908470

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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7: /SIDS2/gcgdata/geneseq/geneseqp-embl/AA1986.DAT:*
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	15	AAR45435	Insulinotropin der
2	155	100.0	30	15	AAR63247	Insulinotropin (GL
3	155	100.0	30	16	AAR69063	Amidated Glucagon
4	155	100.0	30	16	AAR79809	Glucagon like pept
5	155	100.0	30	16	AAR80548	Human glucagon lik
6	155	100.0	30	17	AAR98956	Target peptide (GL
7	155	100.0	30	17	AAR98975	GLP1(7-35)-NH2. S
8	155	100.0	30	18	AAW16383	Glucagon-like pept
9	155	100.0	30	19	AAW63288	Glucagon-like pept
10	155	100.0	30	19	AAW63182	GLP-1(7-36). Homo
11	155	100.0	30	19	AAW50906	Glucagon-like pept
12	155	100.0	30	20	AAY42935	Glucagon-like pept
13	155	100.0	30	20	AAY27374	Glucagon-like pept
14	155	100.0	30	20	AAY39773	Glucagon like pept
15	155	100.0	30	20	AAY34198	GLP-1 mutant pepti
16	155	100.0	30	20	AAY31503	Glucagon-like pept
17	155	100.0	30	20	AAY22166	GLP-1-like peptide
18	155	100.0	30	20	AAY03719	Amino acid sequenc
19	155	100.0	30	21	AAB11283	GLP-1 peptide SEQ
20	155	100.0	30	21	AAB21340	GLP-1 peptide GLP-
21	155	100.0	30	21	AAB21108	Human glucagon-lik
22	155	100.0	30	21	AAB07294	Modified Glucagon
23	155	100.0	30	21	AAB07313	Modified Glucagon
24	155	100.0	30	21	AAB07314	Modified Glucagon
25	155	100.0	30	21	AAY53280	Glucagon-like pept
26	155	100.0	30	21	AAY78949	Glucagon-like pept
27	155	100.0	30	22	AAU07375	Mammalian glucagon
28	155	100.0	30	22	AAE09260	Human glucagon-lik
29	155	100.0	30	22	AAG63303	An insoluble gluca
30	155	100.0	30	22	AAB82336	Glucagon-like pept
31	155	100.0	30	22	AAB83291	GLP-1 peptide #2.
32	155	100.0	30	22	AAG70461	GLP-1. Unidentifi
33	155	100.0	30	22	AAB91170	Pancreatic hormone
34	155	100.0	30	22	AAB91181	Pancreatic hormone
35	155	100.0	30	22	AAB60124	Human glucagon-lik
36	155	100.0	30	22	AAB60249	Glucagon-like pept
37	155	100.0	30	22	AAB36416	Glucagon-like pept
38	155	100.0	30	22	AAB36429	Glucagon-like pept
39	155	100.0	30	22	AAB85922	Glucagon-like pept
40	155	100.0	30	23	ABB80097	Glucagon like pept
41	155	100.0	30	23	AAE14422	Mammalian glucagon
42	155	100.0	30	23	ABB07143	Glucagon-like pept
43	155	100.0	30	23	ABB07144	Glucagon-like pept
44	155	100.0	30	23	AAM50393	Glucagon-like pept
45	155	100.0	31	8	AAP71072	Insulinotropic pep

ALIGNMENTS

RESULT 1
AAR45435
ID AAR45435 standard; protein; 30 AA.
XX
AC AAR45435;
XX
DT 27-JUN-1994 (first entry)
XX
DE Insulinotropin derivative.
XX
KW Insulinotropic; activity; enhancing insulin activity; treatment;
KW Type II diabetes.
XX
OS Synthetic.
XX
PN WO9325579-A.
XX
PD 23-DEC-1993.
XX
PF 14-APR-1993; 93WO-US03388.
XX
PR 15-JUN-1992; 92US-0899073.
XX
PA (PFIZ) PFIZER INC.
XX
PI Andrews GC, Daumy GO, Francoeur ML, Larson ER;
XX
DR WPI; 1994-007457/01.
XX
PT New derivs. of glucagon-like peptide 1 and insulinotropin - used for
PT enhancing insulin action in a mammal, partic. by iontophoretic admin.
XX
PS Claim 3; Page 20; 32pp; English.

```
XX
CC   The sequence is that of a derivative of insulinotropin which
CC   has insulinotropic activity and is useful for enhancing insulin
CC   action in a mammal, partic. for treating Type II diabetes
CC   (claimed). It is partic. suited for delivery to a mammal by
CC   ionophoresis.
XX
SQ   Sequence   30 AA;

  Query Match            100.0%;  Score 155;  DB 15;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 2
AAR63247
ID   AAR63247 standard; peptide; 30 AA.
XX
AC   AAR63247;
XX
DT   02-MAY-1995  (first entry)
XX
DE   Insulinotropin (GLP-1(7-36)) for use in treating NIDDM.
XX
KW   insulinotropic activity; GLP-1; glucagon-like protein 1; NIDDM;
KW   non-insulin dependent diabetes mellitus; insulintropin; truncated.
XX
OS   Synthetic.
XX
PN   EP619322-A.
XX
PD   12-OCT-1994.
XX
PF   10-FEB-1994;   94EP-0300981.
XX
PR   07-APR-1993;   93US-0044133.
XX
PA   (PFIZ ) PFIZER INC.
PA   (PFIZ ) PFIZER CORP.
XX
PI   Danley DE,  Gelfand RA,  Geoghegan KF,  Kim Y,  Lambert WJ;
PI   Qi H,  Oih,  Hong Q,  Yesook K;
XX
DR   WPI; 1994-311774/39.
XX
PT   Treatment of non-insulin dependent diabetes mellitus - using a
PT   glucagon-like peptide 1 or deriv. with prolonged action for
PT   sustained glycaemic control
XX
PS   Claim 2; Page 46; 70pp; English.
XX
CC   This peptide is GLP-1(7-36) [GLP = glucagon-like peptide], a truncated
CC   deriv. of GLP-1. GLP-1 and its deriv.s are useful in the treatment of
CC   Non-Insulin Dependent Diabetes Mellitus (NIDDM). During processing in
CC   the pancreas and intestine, GLP-1 (AAR63245) is converted to a 31 amino
CC   acid peptide having amino acids 7-37 of GLP-1, alternatively referred
CC   to as insulinotropin. GLP-1(7-37) has insulinotropic activity, ie. it
CC   is able to stimulate, or cause to be stimulated, the synthesis of the
CC   hormone insulin. Other derivs. of GLP-1 are shown in AAR63246-51. It
CC   has been discovered that prolonged plasma elevations of GLP-1, and
CC   related polypeptides, are necessary during the meal and beyond to
CC   achieve sustained glycemic control in patients with NIDDM. The invention
CC   provides a compsn. that has prolonged action after each administration.
XX
SQ   Sequence   30 AA;

  Query Match            100.0%;  Score 155;  DB 15;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 3
AAR69063
ID   AAR69063 standard; peptide; 30 AA.
XX
AC   AAR69063;
XX
DT   23-AUG-1995  (first entry)
XX
DE   Amidated Glucagon like peptide 1 (GLP1) (7-36)-NH2.
XX
KW   Glucagon Like Peptide; GLP; transpeptidation; endopeptidase;
KW   trypsin; thrombin; cleavage.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /label= Arg-NH2
XX
PN   WO9503405-A.
XX
PD   02-FEB-1995.
XX
PF   19-JUL-1994;   94WO-US08125.
XX
PR   20-JUL-1993;   93US-0095162.
XX
PA   (BION-) BIONEBRASKA INC.
XX
PI   Henriksen D,  Manning S,  Partridge B,  Stout J,  Wagner FW;
XX
DR   WPI; 1995-075233/10.
XX
PT   Transpeptidation of recombinant polypeptides - using
PT   endopeptidase such as trypsin or thrombin to modify C-terminal
PT   residue.
XX
PS   Claim 33; Page 50; 69pp; English.
XX
CC   The naturally occurring sequence of Glucagon Like Peptide 1 (GLP1)
CC   is AAR69072. It is a 36 AA peptide that has been recombinantly
CC   produced but without a mechanism for providing for the amidation of
CC   the C-terminal Arg residue. Amidated recombinant GLP1 (7-36)NH2
CC   (AAR69063) was prepd. from a multicopy fusion protein contg. four
CC   copies of a modified truncated GLP peptide having AA residues 7-34
CC   of the native polypeptide and the terminal AA residues A-F-A at
CC   residues 35-37 (GLP1 (7-34)-A-F-A) (AAR69064). The recombinant GLP1 (7-
CC   34)-A-F-A can be transpeptidated to yield the modified recombinant
CC   native GLP1 (7-36)-NH2 (AAR69063) as follows. Trypsin was used to
CC   cleave the peptide at the Lys-Ala bond in the presence of either
CC   Gly-Arg-NH2 or Gly-Arg-Gly addition units so that the cleavage of
CC   the Ala-Phe-Arg leaving unit is followed by the addition of
CC   Gly-Arg-NH2 or Gly-Arg-Gly to the core GLP1 (7-34) to yield either
CC    amidated 7-36 GLP1-NH2 or GLP1 7-36 with a terminal Gly (AAR69065).
XX
SQ   Sequence   30 AA;

  Query Match            100.0%;  Score 155;  DB 16;  Length 30;
  Best Local Similarity  100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 4
```

```
AAR79809
ID   AAR79809 standard; peptide; 30 AA.
XX
AC   AAR79809;
XX
DT   01-FEB-1996  (first entry)
XX
DE   Glucagon like peptide GLP-1 (7-36)amide.
XX
KW   Glucagon like peptide; GLP-1 (7-36)amide; type II diabetes;
KW   non-insulin dependent; divalent metal cation; zinc.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "amidated"
XX
PN   EP658568-A1.
XX
PD   21-JUN-1995.
XX
PF   02-DEC-1994;   94EP-0308950.
XX
PR   09-DEC-1993;   93US-0164277.
XX
PA   (ELIL ) LILLY & CO ELI.
XX
PI   Galloway JA,  Hoffmann JA;
XX
DR   WPI; 1995-217011/29.
XX
PT   New divalent metal complexes of glucagon-like peptide 1 - useful for
PT   treating type II diabetes
XX
PS   Claim 4; Page 4; 10pp; English.
XX
CC   AAR79809 is the glucagon like peptide GLP-1 (7-36)amide. When
CC   complexed to a divalent metal cation (pref. zinc) it can be
CC   used to treat type II (non-insulin dependent) diabetes.
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 16;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 5
AAR80548
ID   AAR80548 standard; peptide; 30 AA.
XX
AC   AAR80548;
XX
DT   28-FEB-1996  (first entry)
XX
DE   Human glucagon like peptide (GLP-1).
XX
KW   Exendin-4; diabetes mellitus; hyperglycaemia;
KW   insulinotropic peptide; glucagon like peptide; GLP-1.
XX
OS   Homo sapiens.
XX
PN   US5424286-A.
XX
PD   13-JUN-1995.
XX
PF   24-MAY-1993;   93US-0066480.
XX
PR   24-MAY-1993;   93US-0066480.
XX
PA   (ENGJ/) ENG J.
XX
PI   Eng J;
XX
DR   WPI; 1995-262627/34.
XX
PT   Stimulating/inhibiting insulin release with exendin polypeptide(s) -
PT   for treating diabetes mellitus and preventing hyperglycaemia.
XX
PS   Disclosure; Columns 5-6; 17pp; English.
XX
CC   AAR80548 is the human glucagon like peptide (GLP-1), to which the
CC   Heloderma horridum/suspectum exendin-3/-4 peptides are analogous.
CC   The exendin peptides are insulinotropic, and can therefore be used
CC   in the treatment of diabetes mellitus (types I or II), and for the
CC   prevention of hyperglycaemia.
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 16;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 6
AAR98956
ID   AAR98956 standard; peptide; 30 AA.
XX
AC   AAR98956;
XX
DT   15-JAN-1997  (first entry)
XX
DE   Target peptide (GLP1(7-36)) used in fusion protein construct.
XX
KW   Fusion protein construct; isolation; purification;
KW   growth hormone releasing factor; glucagon-like peptide 1;
KW   parathyroid hormone; inclusion body; carbonic anhydrase.
XX
OS   Synthetic.
XX
PN   WO9617942-A1.
XX
PD   13-JUN-1996.
XX
PF   07-DEC-1995;   95WO-US15800.
XX
PR   07-DEC-1994;   94US-0350530.
XX
PA   (BION-) BIONEBRASKA INC.
XX
PI   De LA MOTTE RS,  Henriksen DB,  Holmquist B,  Manning SD;
PI   Partridge BE, Stout JS,  Wagner FW;
XX
DR   WPI; 1996-287186/29.
XX
PT   Isolation and purificn of peptide(s) from fusion protein constructs
PT   - which include a carbonic anhydrase and a variable fused
PT   polypeptide
XX
PS   Claim 58; Page 50; 67pp; English.
XX
CC   A new method for the isolation and/or purification of a recombinant
CC   peptide employs a fusion protein construct (FPC) comprising a
CC   carbonic anhydrase and a variable fused polypeptide containing a
CC   target peptide.  The method comprises precipitating either the FPC or
CC   a fragment of the FPC including the carbonic anhydrase.  An
CC   alternative method of producing the peptide comprises expressing the
```

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CC   FPC as part of an inclusion body.  The target peptides of the FPC are
CC   derived from growth hormone releasing factor (GRF), glucagon-like
CC   peptide 1 (GLP1) or parathyroid hormone (PTH).  This sequence
CC   corresponds to amino acids 7-36 of GLP1.
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 17;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 7
AAR98975
ID   AAR98975 standard; Peptide; 30 AA.
XX
AC   AAR98975;
XX
DT   03-DEC-1996  (first entry)
XX
DE   GLP1(7-35)-NH2.
XX
KW   GLP1; C-amide; C-amidated peptide; alpha-carboxamide;
KW   recombinant protein; fusion protein; transpeptidation.
XX
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "C-terminal amide"
XX
PN   WO9617941-A2.
XX
PD   13-JUN-1996.
XX
PF   07-DEC-1995;   95WO-US15799.
XX
PR   07-DEC-1994;   94US-0350528.
XX
PA   (BION-) BIONEBRASKA INC.
XX
PI   Heriksen DB,  Holmquist B,  Patridge BE,  Stout JS;
PI   Wagner FW;
XX
DR   WPI; 1996-287185/29.
XX
PT   Production of C-terminal alpha-carboxamidated peptide(s) - by
PT   cleavage and transpeptidation of recombinant multicopy peptide(s) or
PT   fusion constructs
XX
PS   Example 16; Page 69; 93pp; English.
XX
CC   Amidated recombinant GLP1(7-36)-NH2 (AAR98975) may be prepd. from
CC   a recombinant multicopy fusion peptide by cleavage, transamidation
CC   and photochemical rearrangement.  A DNA construct is formed by
CC   joining 4 copies of the coding sequence for GLP1(7-36)-Met
CC   (AAR98976) and a linker peptide including a thrombin cleavage site.
CC   Expression in E. coli, followed by thrombin and CNBr digestion yields
CC   GLP1(7-36)-Hse (AAR98977), which is subjected to transamidation and
CC   UV irradiation to yield GLP1(7-36)-NH2.  The amidated peptide may also
CC   be produced via GLP1(7-35)-Met (AAR98978) using a transpeptidation
CC   reaction.
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 17;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 8
AAW16383
ID   AAW16383 standard; Peptide; 30 AA.
XX
AC   AAW16383;
XX
DT   01-OCT-1997  (first entry)
XX
DE   Glucagon-like peptide-1(7-36).
XX
KW   Glucagon-like peptide-1(7-36); GLP-1 (7-36); insulin secretagogue;
KW   insulinotropic hormone; type II diabetes mellitus; therapy.
XX
OS   Rattus sp.
XX
PN   US5614492-A.
XX
PD   25-MAR-1997.
XX
PF   05-MAY-1986;   86US-0859928.
XX
PR   05-SEP-1991;   91US-0756215.
PR   05-MAY-1986;   86US-0859928.
PR   26-JAN-1988;   88US-0148517.
PR   01-JUN-1990;   90US-0532111.
PR   23-NOV-1993;   93US-0156800.
XX
PA   (GEHO ) GEN HOSPITAL CORP.
XX
PI   Habener JF;
XX
DR   WPI; 1997-201513/18.
XX
PT   Glucagon-like peptide-1 fragment comprising amino acids 7-36 -
PT   useful for enhancing insulin production in pancreatic islet cells,
PT   especially for treating type II diabetes mellitus
XX
PS   Claim 1; Column 34; 37pp; English.
XX
CC   Glucagon-like peptide-1 (7-36) (AAW16383) comprises amino acid
CC   residues 7-36 of rat glucagon-like peptide-1 (GLP-1) (see also
CC   AAW16384).  It is naturally produced from GLP-1 in the intestine
CC   and to a lesser extent in the pancreas.  GLP-1(7-36) has
CC   insulinotropic activity, being able to stimulate the synthesis
CC   and secretion of insulin from the pancreas.  It can be produced
CC   by chemical synthesis or by proteolytic digestion of GLP-1 for use
CC   as an insulin secretagogue or for the treatment of type II diabetes
CC   mellitus.
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 18;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 9
AAW63288
ID   AAW63288 standard; peptide; 30 AA.
XX
AC   AAW63288;
XX
DT   29-SEP-1998  (first entry)
XX
```

```
DE   Glucagon-like peptide-1 (7-36) amide.
XX
KW   GLP-1; glucagon-like peptide; obesity.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "C-terminal amide"
XX
PN   WO9819698-A1.
XX
PD   14-MAY-1998.
XX
PF   04-NOV-1997;   97WO-US20114.
XX
PR   30-OCT-1997;   97US-0961405.
PR   05-NOV-1996;   96US-0030213.
XX
PA   (ELIL ) LILLY & CO ELI.
XX
PI   DiMarchi RD,  Efendic S;
XX
DR   WPI; 1998-286595/25.
XX
PT   Use of glucagon-like peptide-1 and analogues and derivatives - to
PT   reduce body weight, e.g., in treatment of obesity
XX
PS   Claim 12; Page 18; 42pp; English.
XX
CC   The patent describes a new method of reducing body weight which
CC   comprises administration of a composition comprising: (i) glucagon-
CC   like peptide-1 (GLP-1); (ii) a GLP-1 analogue; (iii) a GLP-1 derivative;
CC   (iv) an agonist of the GLP-1 receptor; (v) an agonist of the GLP-1
CC   signal transduction cascade; (vi) a compound which stimulates synthesis
CC   of endogenous GLP-1; (vii) a compound that stimulates release of
CC   endogenous GLP-1; or (viii) a salt of a material described in (i)-(vii).
CC   The method may be used for treatment of obesity. The present sequence,
CC   GLP-1 (7-36) amide, represents a preferred GLP-1 compound which can be
CC   used in the method.
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 19;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 10
AAW63182
ID   AAW63182 standard; peptide; 30 AA.
XX
AC   AAW63182;
XX
DT   16-SEP-1998  (first entry)
XX
DE   GLP-1(7-36).
XX
KW   Glucagon-like peptide-1; GLP-1; diabetes; lipophilic; tetradecanoyl;
KW   carboxynonadecanoyl; deoxycholoyl; choloyl; lithocholoyl.
XX
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "optionally the C-terminal is in amide form"
XX
PN   WO9808871-A1.
XX
PD   05-MAR-1998.
XX
PF   22-AUG-1997;   97WO-DK00340.
XX
PR   20-DEC-1996;   96DK-0001470.
PR   30-AUG-1996;   96DK-0000931.
PR   08-NOV-1996;   96DK-0001259.
XX
PA   (NOVO ) NOVO-NORDISK AS.
XX
PI   Knudsen LB,  Nielsen PF,  Sorensen PO;
XX
DR   WPI; 1998-239721/21.
XX
PT   Glucagon-like peptide-1 derivatives which have lipophilic
PT   substituent - exhibit protracted profiles of action relative to
PT   known glucagon-like peptide-1 compounds and are useful in
PT   treatment of diabetes
XX
PS   Claim 36; Page -; 76pp; English.
XX
CC   New derivatives of glucagon-like peptide-1 (GLP-1) and its fragments
CC   and their analogues are disclosed in which at least one amino acid
CC   residue of the parent peptide has a lipophilic substituent attached
CC   to it. The GLP-1 fragment is preferably GLP-1(A-C) where A is 1-7 and
CC   C is 35-45. The lipophilic substituent is typically tetradecanoyl,
CC   carboxynonadecanoyl, deoxycholoyl, choloyl or lithocholoyl, and it
CC   is attached e.g. to the epsilon-amino group of a Lys residue in the
CC   peptide. The present sequence represents a preferred parent GLP-1
CC   fragment to which the lipophilic substituent is to be attached.
CC   GLP-1 and its analogues and fragments may be used in treatment of
CC   type 1 and type 2 diabetes. Prior art analogues exhibit a high
CC   clearance rate from the body, which limits their usefulness. The
CC   new lipophilically substituted compounds have a protracted profile
CC   of action compared with known analogues, e.g. GLP-1(7-37).
CC   (N.B. The present sequence is described by name in the patent
CC   specification but is not explicitly shown. It is deduced from the
CC   protein sequence shown in Swiss-Prot entry P01275 using information
CC   given in the patent.)
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 19;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
AAW50906
ID   AAW50906 standard; peptide; 30 AA.
XX
AC   AAW50906;
XX
DT   17-AUG-1998  (first entry)
XX
DE   Glucagon-like peptide-1 analogue SEQ ID NO:5.
XX
KW   Glucagon-like peptide-1; GLP-1 (7-37); GLP-1 analogue; surgical trauma;
KW   stress; hormonal response; insulin resistance; catabolic reaction;
KW   human; incretin hormone.
XX
OS   Synthetic.
OS   Homo sapiens.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   30
FT                   /note= "amidated"
XX
PN   WO9808873-A1.
```

XX
PD 05-MAR-1998.
XX
PF 26-AUG-1997; 97WO-US15042.
XX
PR 21-AUG-1997; 97US-0024982.
PR 30-AUG-1996; 96US-0024982.
XX
PA (ELIL) LILLY & CO ELI.
XX
PI Efendic S;
XX
DR WPI; 1998-239722/21.
XX
PT Use of glucagon-like peptide-1 and analogues and their derivatives
PT - to attenuate post-surgical catabolic changes, insulin resistance
PT and hormonal responses to stress
XX
PS Claim 1; Page 13; 42pp; English.
XX
CC The present sequence represents a glucagon-like peptide-1 (GLP-1)
CC analogue, which is used in the methods of the invention. The methods
CC are: (1) for attenuating post-surgical catabolic changes and insulin
CC resistance, comprising administering glucagon-like peptide-1 (GLP-1), a
CC GLP-1 analogue, a GLP-1 derivative, or a salt of this compound; (2) for
CC attenuating post-surgical catabolic changes and hormonal responses to
CC stress, comprising administering a compound which exerts insulino-tropic
CC activity by interacting with the same receptor (or receptors) with which
CC GLP-1, GLP-1 analogues and GLP-1 derivatives interact in exerting their
CC insulino-tropic activity, and (3) for attenuating post-surgical catabolic
CC changes and hormonal responses to stress, comprising administering a
CC compound which enhances insulin sensitivity by interacting with the same
CC receptor (or receptors) with which GLP-1, GLP-1 analogues and GLP-1
CC derivatives interact to enhance insulin sensitivity. The processes are
CC useful for improving recovery after surgery by preventing the catabolic
CC reaction and insulin resistance caused by surgical trauma and
CC exacerbated by pre-operative fasting. GLP-1's short half-life, and hence
CC the need for continuous administration, are not disadvantages, as the
CC patient is usually hospitalised before surgery, and fluids are
CC continuously administered parenterally, before, during and after surgery.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 19; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 12
AAY42935
ID AAY42935 standard; peptide; 30 AA.
XX
AC AAY42935;
XX
DT 20-DEC-1999 (first entry)
XX
DE Glucagon-like peptide GLP-1 (7-36).
XX
KW Glucagon-like peptide; GLP-1; antidiabetic; anti-obesity;
KW insulinotropic; appetite suppressant.
XX
OS Homo sapiens.
XX
PN WO9943707-A1.
XX
PD 02-SEP-1999.
XX
PF 25-FEB-1999; 99WO-DK00085.
XX
PR 27-FEB-1998; 98DK-0000263.
PR 27-FEB-1998; 98DK-0000268.
PR 08-APR-1998; 98DK-0000508.
XX
PA (NOVO) NOVO-NORDISK AS.
XX
PI Knudsen LB, Huusfeldt PO, Nielsen PF, Madsen K;
XX
DR WPI; 1999-540561/45.
XX
PT New N-modified peptide derivatives, useful for treating diabetes,
PT insulin resistance and obesity -
XX
PS Disclosure; Page 1; 62pp; English.
XX
CC New glucagon-like peptide-1 (GLP-1) derivatives are disclosed which
CC comprise residues 7-45 of GLP-1 or a fragment thereof, preferably
CC residues 7-36, 7-37 or 7-38 or their analogues, in which (a) a
CC lipophilic substituent is attached to at least one amino acid and (b)
CC the N-terminal is substituted with a group containing an optionally
CC substituted 5- or 6-membered N-heterocycle, e.g. imidazolyl. The
CC compounds stimulate secretion of insulin, suppress secretion of
CC glucagon, suppress gastric motility and/or restore glucose compliance
CC to beta-cells. They are used to treat insulin-dependent or non-insulin-
CC dependent diabetes mellitus, insulin resistance and obesity. They have
CC a longer-lasting action than GLP-1 derivatives that lack the lipophilic
CC substituent. Some of them also exist as partially structured micelle-
CC like aggregates, so have improved solubility and stability. The present
CC sequence is a specifically preferred example of a GLP-1 analogue on
CC which the derivatives are based.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 20; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 13
AAY27374
ID AAY27374 standard; peptide; 30 AA.
XX
AC AAY27374;
XX
DT 26-NOV-1999 (first entry)
XX
DE Glucagon-like peptide 1 (GLP-1) fragment (residues 7-36).
XX
KW Glucagon; glucagon-like peptide 1; GLP-1; detergent; glycogenolytic;
KW gluconeogenesis; insulin secretion; diabetes mellitus; obesity;
KW spasmolytic; hypoglycemia.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 30
FT /note= "C-terminal amide"
XX
PN WO9947160-A1.
XX
PD 23-SEP-1999.
XX
PF 08-MAR-1999; 99WO-DK00115.
XX
PR 13-MAR-1998; 98EP-0610006.
PR 18-MAR-1998; 98US-0078422.
XX
PA (NOVO) NOVO-NORDISK AS.
XX

PI Kaarsholm NC;
XX
DR WPI; 1999-561858/47.
XX
PT Aqueous solution of glucagon or glucagon-like peptide-1 stabilized with
PT charged detergent, for treating diabetes or obesity -
XX
PS Examples; Page 5; 27pp; English.
XX
CC The invention provides an aqueous solution that comprises: (i) at least
CC one glucagon or glucagon-like peptide-1 (GLP-1), or their analogs or
CC derivatives (I) and (ii) at least one detergent, other than dodecyl
CC phosphocholine. The peptide (I) has at least two positive or negative
CC charges or at least one charge of each sign. Glucagon is involved in
CC glycogenolytic and gluconeogenesis processes (it also has a spasmolytic
CC effect on smooth muscle) while GLP-1 promotes secretion of insulin and
CC suppresses that of glucagon. The polar head of detergent interacts with
CC charged side chains in (I) while the hydrophobic tail interacts with the
CC hydrophobic patch in (I). The solution is used to treat (non-)insulin-
CC dependent diabetes mellitus and obesity. Glucagon is also used in
CC radiology as a spasmolytic and for treating hypoglycemia. The detergent
CC stabilizes the solutions, which are available for immediate use and can
CC be stored for a long time at 4-25plusoC. The solutions may have pH
CC between 4 and 9, allowing selection of conditions that suppress chemical
CC degradation. The detergents are made from natural materials so have
CC better biological compatibility than known detergents. The present
CC sequence represents a GLP-1 peptide fragment.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 20; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 14
AAY39773
ID AAY39773 standard; peptide; 30 AA.
XX
AC AAY39773;
XX
DT 26-NOV-1999 (first entry)
XX
DE Glucagon like peptide-1 (7-36).
XX
KW Glucagon-like peptide-1; GLP-1; appetite suppression; human; diabetes;
KW spontaneous food intake; therapy.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Misc-difference 29
FT /note= "amidated"
XX
PN WO9947161-A1.
XX
PD 23-SEP-1999.
XX
PF 16-MAR-1999; 99WO-US05571.
XX
PR 19-MAR-1998; 98US-0078544.
XX
PA (BION-) BIONEBRASKA INC.
XX
PI Goke B, Beglinger C, Coolidge TR;
XX
DR WPI; 1999-561859/47.
XX
PT New composition for controlling food intake especially in diabetes
PT sufferers -
XX
PS Claim 5; Page 22; 35pp; English.
XX
CC This sequence represents a glucagon-like peptide-1 sequence used in the
CC composition of the invention. The composition is for appetite
CC suppression, and comprises a compound binding to a GLP-1 receptor and a
CC pharmaceutical carrier. The composition can be administered to control
CC appetite and/or reduce spontaneous food intake in humans, especially in
CC humans with diabetes.
XX
SQ Sequence 30 AA;

Query Match 100.0%; Score 155; DB 20; Length 30;
Best Local Similarity 100.0%; Pred. No. 1.1e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

RESULT 15
AAY34198
ID AAY34198 standard; peptide; 30 AA.
XX
AC AAY34198;
XX
DT 16-NOV-1999 (first entry)
XX
DE GLP-1 mutant peptide, GLP-1(7-36).
XX
KW GLP-1; Glucagon-like peptide-1; human; type I diabetes; type II diabetes;
KW obesity; therapy; mutein.
XX
OS Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 30
FT /note= "optionally amidated"
XX
PN WO9943341-A1.
XX
PD 02-SEP-1999.
XX
PF 25-FEB-1999; 99WO-DK00084.
XX
PR 27-FEB-1998; 98DK-0000268.
PR 27-FEB-1998; 98DK-0000272.
XX
PA (NOVO) NOVO-NORDISK AS.
XX
PI Knudsen LB, Huusfeldt PO, Nielsen PF, Kaarsholm NC, Olsen HB;
PI Bjorn SE;
XX
DR WPI; 1999-540500/45.
XX
PT Composition containing stabilized derivatives of glucagon-like
PT peptide-1 with high alpha-helix content, for treating diabetes and
PT obesity
XX
PS Claim 30; Page -; 63pp; English.
XX
CC This sequence represents a mutant of the human glucagon-like peptide-1
CC (GLP-1), and has a helix content (determined by circular dichroism at
CC 222 nm in water at 20-24 degrees C) over 25, preferably 25-50,% at
CC peptide concentration about 10 microM. The GLP-1 mutant can be used in a
CC pharmaceutical composition of the invention. The compositions are used to
CC treat diabetes (both type I and particularly type II) and/or obesity.
CC They have better solubility and/or stability (against endogenous
CC diaminopeptidyl peptidase) than parent peptides, with long persistence in
CC the plasma and retention of biological activity. They form partially

```
CC   structured micelle-like aggregates in solution, with the helix content
CC   practically independent of concentration.
CC   NOTE: This sequence was created from the human GLP-1 sequence using
CC   information given in the specification.
XX
SQ   Sequence   30 AA;

  Query Match             100.0%;  Score 155;  DB 20;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 1.1e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


Search completed: January  7, 2003, 16:23:33
Job time : 37 secs
```

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: January 7, 2003, 16:22:39 ; Search time 15 Seconds
(without alignments)
192.269 Million cell updates/sec

Title: US-09-830-323-1
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283224 seqs, 96134422 residues

Total number of hits satisfying chosen parameters: 283224

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	158	1	GCPG	glucagon precursor
2	155	100.0	180	1	GCHU	glucagon precursor
3	155	100.0	180	1	GCGP	glucagon precursor
4	155	100.0	180	1	GCRTDU	glucagon precursor
5	155	100.0	180	1	GCRT	glucagon precursor
6	155	100.0	180	1	GCHY	glucagon precursor
7	155	100.0	180	1	GCBO	glucagon precursor
8	155	100.0	180	2	A57294	glucagon precursor
9	143	92.3	151	1	GCCH	glucagon precursor
10	143	92.3	206	2	I51301	proglucagon - chic
11	129	83.2	101	1	GCFGB	glucagon precursor
12	126	81.3	30	2	B61125	glucagon-like pept
13	126	81.3	30	2	C61125	glucagon-like pept
14	120	77.4	122	1	GCAF2	glucagon 2 precurs
15	118	76.1	66	2	I51093	glucagon - chinook
16	118	76.1	178	2	I51058	glucagon I precurs
17	117	75.5	63	1	GCIDC	glucagon precursor
18	116	74.8	72	1	GCGXA	glucagon precursor
19	113	72.9	60	1	GCONC	glucagon precursor
20	113	72.9	178	2	I51057	glucagon II precur
21	111	71.6	30	2	S44473	glucagon-like pept
22	103	66.5	87	1	GCFIS	glucagon precursor
23	97	62.6	29	2	S07211	glucagon - marbled
24	96	61.9	31	2	S44472	glucagon G2 - Nort
25	96	61.9	124	1	GCAF	glucagon 1 precurs
26	95	61.3	29	1	GCDF	glucagon - smaller
27	94	60.6	31	2	S44471	glucagon G1 - Nort
28	93	60.0	29	1	GCEN	glucagon - elephan
29	90	58.1	29	1	GCOPV	glucagon - North A
30	90	58.1	29	2	A91740	glucagon - turkey
31	90	58.1	29	2	A91741	glucagon - rabbit
32	90	58.1	29	2	A91742	glucagon - Arabian
33	90	58.1	29	2	C39258	glucagon - common
34	90	58.1	69	1	GCDG69	glucagon-69 - dog
35	88	56.8	29	1	GCDK	glucagon - duck
36	88	56.8	29	1	A61583	glucagon - ostrich
37	88	56.8	29	1	GCTTS	glucagon - slider
38	88	56.8	29	2	C60840	glucagon I - Europ
39	87	56.1	29	1	GCCB	glucagon - Chinchi
40	87	56.1	39	1	HWGH4G	exendin-4 - Gila m
41	86	55.5	29	1	GCFLE	glucagon - Europea
42	86	55.5	29	2	A61135	glucagon - bigeye
43	85	54.8	39	1	HWGH3Z	exendin-3 - Mexica
44	83	53.5	29	2	S39018	glucagon - bowfin
45	79	51.0	36	1	GCFI	glucagon-36 - spot

ALIGNMENTS

RESULT 1
GCPG
glucagon precursor - pig (fragment)
N;Alternate names: glicentin; oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucagon-69
C;Species: Sus scrofa domestica (domestic pig)
C;Date: 17-Dec-1982 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: A01540; A60312; A91781; B32614; A28064
R;Thim, L.; Moody, A.J.
Regul. Pept. 2, 139-150, 1981
A;Title: The primary structure of porcine glicentin (proglucagon).
A;Reference number: A94233; MUID:81248172; PMID:6894800
A;Accession: A01540
A;Molecule type: protein
A;Residues: 1-69 <TH1>
R;Thim, L.; Moody, A.J.
Regul. Pept. Suppl. 2, S33, 1983
A;Title: Primary structure of a possible porcine proglucagon fragment.
A;Reference number: A60312
A;Accession: A60312
A;Molecule type: protein
A;Residues: 1-30 <TH2>
A;Note: this peptide is co-secreted with glucagon from the pancreas
R;Bromer, W.W.; Sinn, L.G.; Behrens, O.K.
J. Am. Chem. Soc. 79, 2807-2810, 1957
A;Title: The amino acid sequence of glucagon. V. Location of amide groups, acid degradati
A;Reference number: A91781
A;Accession: A91781
A;Molecule type: protein
A;Residues: 33-61 <BRO>
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestine
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: B32614
A;Molecule type: protein
A;Residues: 78-107 <ORS>
R;Buhl, T.; Thim, L.; Kofod, H.; Orskov, C.; Harling, H.; Holst, J.J.
J. Biol. Chem. 263, 8621-8624, 1988
A;Title: Naturally occurring products of proglucagon 111-160 in the porcine and human sma
A;Reference number: A28064; MUID:88243712; PMID:3379036
A;Accession: A28064
A;Molecule type: protein
A;Residues: 111-158 <BUH>
C;Comment: X's represent missing amino acids, mostly basic, that are predicted to exist i
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; intesti
F;1-69/Product: glucagon-69 #status experimental <G69>
F;1-30/Region: glicentin-related peptide #status experimental
F;33-69/Product: glucagon-37 #status predicted <G37>
F;33-61/Product: glucagon #status experimental <GCN>
F;78-107/Product: glucagon-like peptide 1 #status experimental <GL1>

```
F;126-158/Product: glucagon-like peptide 2 #status experimental <GL2>
F;107/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

  Query Match             100.0%;  Score 155;  DB 1;  Length 158;
  Best Local Similarity   100.0%;  Pred. No. 5.5e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db     78 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 107


RESULT 2
GCHU
glucagon precursor [validated] - human
N;Contains: glicentin; glicentin-related polypeptide (GRPP); glucagon; glucagon-like pep
ke peptide 1 (tGLP1)
C;Species: Homo sapiens (man)
C;Date: 24-Apr-1984 #sequence_revision 31-Mar-1993 #text_change 08-Dec-2000
C;Accession: A24377; A44197; A30875; A32614; A01541; S23309
R;White, J.W.; Saunders, G.F.
Nucleic Acids Res. 14, 4719-4730, 1986
A;Title: Structure of the human glucagon gene.
A;Reference number: A24377; MUID:86259053; PMID:3725587
A;Accession: A24377
A;Molecule type: DNA
A;Residues: 1-180 <WHI>
A;Cross-references: GB:X03991
R;Bell, G.I.; Sanchez-Pescador, R.; Laybourn, P.J.; Najarian, R.C.
Nature 304, 368-371, 1983
A;Title: Exon duplication and divergence in the human preproglucagon gene.
A;Reference number: A44197; MUID:83271477; PMID:6877358
A;Accession: A44197
A;Molecule type: DNA
A;Residues: 1-179 <BEL>
A;Cross-references: GB:V01515; NID:g31777; PIDN:CAA24759.1; PID:g31778
R;Drucker, D.J.; Asa, S.
J. Biol. Chem. 263, 13475-13478, 1988
A;Title: Glucagon gene expression in vertebrate brain.
A;Reference number: A30875; MUID:88330860; PMID:2901414
A;Accession: A30875
A;Molecule type: mRNA
A;Residues: 1-180 <DRU>
A;Cross-references: GB:J04040; NID:g183269; PIDN:AAA52567.1; PID:g183270
R;Orskov, C.; Bersani, M.; Johnsen, A.H.; Hojrup, P.; Holst, J.J.
J. Biol. Chem. 264, 12826-12829, 1989
A;Title: Complete sequences of glucagon-like peptide-1 from human and pig small intestin
A;Reference number: A92732; MUID:89327238; PMID:2753890
A;Accession: A32614
A;Molecule type: protein
A;Residues: 98-127 <ORS>
R;Thomsen, J.; Kristiansen, K.; Brunfeldt, K.; Sundby, F.
FEBS Lett. 21, 315-319, 1972
A;Title: The amino acid sequence of human glucagon.
A;Reference number: A91373
A;Accession: A01541
A;Molecule type: protein
A;Residues: 53-81 <THO>
R;Tsugita, A.; Takamoto, K.; Kamo, M.; Iwadate, H.
Eur. J. Biochem. 206, 691-696, 1992
A;Title: C-terminal sequencing of protein. A novel partial acid hydrolysis and analysis
A;Reference number: S23188; MUID:92298996; PMID:1606956
A;Accession: S23309
A;Molecule type: protein
A;Residues: 53-81 <TSU>
C;Comment: In pancreatic alpha-cells, proglucagon is processed to glicentin-related poly
stinal L cells, proglucagon is processed to truncated glucagon-like peptide 1, glucagon-
dulin.
C;Genetics:
A;Gene: GDB:GCG
A;Cross-references: GDB:119265; OMIM:138030
A;Map position: 2q36-2q37
A;Introns: 31/2; 85/2; 131/2; 179/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; intes
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status experimental <PGC>
F;21-89/Product: glicentin #status experimental <GLN>
F;21-50/Product: glicentin-related polypeptide #status predicted <GRPP>
F;53-89/Product: oxyntomodulin #status experimental <OXN>
F;53-81/Product: glucagon #status experimental <GCN>
F;92-178/Product: major proglucagon fragment #status experimental <MPGF>
F;92-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;98-127/Product: truncated glucagon-like peptide 1 #status experimental <TGL>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following g

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 3
GCGP
glucagon precursor - guinea pig
N;Alternate names: oxyntomodulin
N;Contains: glicentin-related peptide; glucagon; glucagon-37 (oxyntomodulin); glucagon-
C;Species: Cavia porcellus (guinea pig)
C;Date: 30-Sep-1987 #sequence_revision 31-Dec-1992 #text_change 16-Jun-2000
C;Accession: A24856; A23849; A60323
R;Seino, S.; Welsh, M.; Bell, G.I.; Chan, S.J.; Steiner, D.F.
FEBS Lett. 203, 25-30, 1986
A;Title: Mutations in the guinea pig preproglucagon gene are restricted to a specific p
A;Reference number: A24856; MUID:86248118; PMID:3755107
A;Accession: A24856
A;Molecule type: mRNA
A;Residues: 1-180 <SEI>
A;Cross-references: DDBJ:D00014; GB:N00014; NID:g220288; PIDN:BAA00010.1; PID:g220289
R;Huang, C.G.; Eng, J.; Pan, Y.C.E.; Hulmes, J.D.; Yalow, R.S.
Diabetes 35, 508-512, 1986
A;Title: Guinea pig glucagon differs from other mammalian glucagons.
A;Reference number: A23849; MUID:86165412; PMID:3956884
A;Accession: A23849
A;Molecule type: protein
A;Residues: 53-81 <HUA>
R;Conlon, J.M.; Hansen, H.F.; Schwartz, T.W.
Regul. Pept. 11, 309-320, 1985
A;Title: Primary structure of glucagon and a partial sequence of oxyntomodulin (glucago
A;Reference number: A60323; MUID:86017849; PMID:4048553
A;Accession: A60323
A;Molecule type: protein
A;Residues: 53-81 <CON>
A;Note: glucagon-37 was not completely sequenced
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancr
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-89/Product: glucagon-37 (oxyntomodulin) #status experimental <G37>
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following g

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127
```

RESULT 4
GCRTDU
glucagon precursor - degu
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Octodon degus (degu)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: C36118
R;Nishi, M.; Steiner, D.F.
Mol. Endocrinol. 4, 1192-1198, 1990
A;Title: Cloning of complementary DNAs encoding islet amyloid polypeptide, insulin, and
A;Reference number: A36118; MUID:91155952; PMID:2293024
A;Accession: C36118
A;Molecule type: mRNA
A;Residues: 1-180 <NIS>
A;Cross-references: GB:M57688; NID:g202467; PIDN:AAA40588.1; PID:g202468
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 5
GCRT
glucagon precursor - rat
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like
C;Species: Rattus norvegicus (Norway rat)
C;Date: 30-Sep-1987 #sequence_revision 30-Sep-1987 #text_change 26-Feb-1999
C;Accession: A22655; A25190; A44198
R;Heinrich, G.; Gros, P.; Habener, J.F.
J. Biol. Chem. 259, 14082-14087, 1984
A;Title: Glucagon gene sequence: four of six exons encode separate functional domains of
A;Reference number: A22655; MUID:85054853; PMID:6094539
A;Accession: A22655
A;Molecule type: DNA
A;Residues: 1-180 <HEI>
A;Cross-references: EMBL:K02809
A;Note: the authors translated the codon TTG for residue 10 as Glu and ACC for residue 5
R;Mojsov, S.; Heinrich, G.; Wilson, I.B.; Ravazzola, M.; Orci, L.; Habener, J.F.
J. Biol. Chem. 261, 11880-11889, 1986
A;Title: Preproglucagon gene expression in pancreas and intestine diversifies at the lev
A;Reference number: A25190; MUID:86304324; PMID:3528148
A;Accession: A25190
A;Status: not compared with conceptual translation
A;Molecule type: mRNA
A;Residues: 1-180 <MOJ>
R;Heinrich, G.; Gros, P.; Lund, P.K.; Bentley, R.C.; Habener, J.F.
Endocrinology 115, 2176-2181, 1984
A;Title: Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded amino acid s
A;Reference number: A44198; MUID:85051023; PMID:6548696
A;Accession: A44198
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <HE2>
A;Cross-references: GB:K02809; GB:K02810; GB:K02811; GB:K02812
C;Genetics:
A;Introns: 31/2; 85/2; 131/2; 179/2
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gly

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 6
GCHY
glucagon precursor - golden hamster
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like p
C;Species: Mesocricetus auratus (golden hamster)
C;Date: 13-Jun-1983 #sequence_revision 13-Jun-1983 #text_change 20-Mar-1998
C;Accession: A01539
R;Bell, G.I.; Santerre, R.F.; Mullenbach, G.T.
Nature 302, 716-718, 1983
A;Title: Hamster preproglucagon contains the sequence of glucagon and two related peptide
A;Reference number: A01539; MUID:83167563; PMID:6835407
A;Accession: A01539
A;Molecule type: mRNA
A;Residues: 1-180 <BEL>
A;Cross-references: EMBL:J00059
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancrea
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status predicted <GCN>
F;98-127/Product: glucagon-like peptide 1 #status predicted <GL1>
F;146-180/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gly

Query Match 100.0%; Score 155; DB 1; Length 180;
Best Local Similarity 100.0%; Pred. No. 6.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 7
GCBO
glucagon precursor - bovine
N;Contains: glicentin-related peptide; glucagon; glucagon-like peptide 1; glucagon-like p
C;Species: Bos primigenius taurus (cattle)
C;Date: 14-Nov-1983 #sequence_revision 14-Nov-1983 #text_change 20-Mar-1998
C;Accession: A93970; A92081; A01538
R;Lopez, L.C.; Frazier, M.L.; Su, C.J.; Kumar, A.; Saunders, G.F.
Proc. Natl. Acad. Sci. U.S.A. 80, 5485-5489, 1983
A;Title: Mammalian pancreatic preproglucagon contains three glucagon-related peptides.
A;Reference number: A93970; MUID:83299996; PMID:6577439
A;Accession: A93970
A;Molecule type: mRNA
A;Residues: 1-180 <LOP>
A;Cross-references: EMBL:K00107
R;Bromer, W.W.; Boucher, M.E.; Koffenberger Jr., J.E.
J. Biol. Chem. 246, 2822-2827, 1971
A;Title: Amino acid sequence of bovine glucagon.
A;Reference number: A92081; MUID:71166445; PMID:5102927
A;Accession: A92081
A;Molecule type: protein
A;Residues: 53-81 <BRO>
C;Superfamily: glucagon

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C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancre
F;1-20/Domain: signal sequence #status predicted <SIG>
F;21-180/Product: proglucagon #status predicted <PGC>
F;21-50/Region: glicentin-related peptide #status predicted
F;53-81/Product: glucagon #status experimental <GCN>
F;98-127/Product: glucagon-like peptide 1 #status experimental <GL1>
F;146-178/Product: glucagon-like peptide 2 #status predicted <GL2>
F;127/Modified site: amidated carboxyl end (Arg) (amide in mature form from following gl

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 8
A57294
glucagon precursor - mouse
C;Species: Mus musculus (house mouse)
C;Date: 01-Dec-1995 #sequence_revision 01-Dec-1995 #text_change 16-Jul-1999
C;Accession: A57294; S49903
R;Rothenberg, M.E.; Eilertson, C.D.; Klein, K.; Zhou, Y.; Lindberg, I.; McDonald, J.K.;
J. Biol. Chem. 270, 10136-10146, 1995
A;Title: Processing of mouse proglucagon by recombinant prohormone convertase 1 and immu
A;Reference number: A57294; MUID:95247722; PMID:7730317
A;Accession: A57294
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-180 <ROT>
A;Cross-references: EMBL:Z46845; NID:g599880; PIDN:CAA86902.1; PID:g599881
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas

  Query Match             100.0%;  Score 155;  DB 2;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 6.3e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 9
GCCH
glucagon precursor - chicken
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Gallus gallus (chicken)
C;Date: 31-Dec-1991 #sequence_revision 31-Mar-1993 #text_change 18-Jun-1999
C;Accession: S09992; A92189; A60836; A01542
R;Hasegawa, S.; Terazono, K.; Nata, K.; Takada, T.; Yamamoto, H.; Okamoto, H.
FEBS Lett. 264, 117-120, 1990
A;Title: Nucleotide sequence determination of chicken glucagon precursor cDNA. Chicken p
A;Reference number: S09992; MUID:90249492; PMID:2338135
A;Accession: S09992
A;Molecule type: mRNA
A;Residues: 1-151 <HAS>
A;Cross-references: EMBL:Y07539; NID:g63749; PIDN:CAA68827.1; PID:g63750
R;Pollock, H.G.; Kimmel, J.R.
J. Biol. Chem. 250, 9377-9380, 1975
A;Title: Chicken glucagon. Isolation and amino acid sequence studies.
A;Reference number: A92189; MUID:76069271; PMID:1194290
A;Accession: A92189
A;Molecule type: protein
A;Residues: 55-83 <POL>
R;Huang, J.; Eng, J.; Yalow, R.S.
Horm. Metab. Res. 19, 542-544, 1987
A;Title: Chicken glucagon: sequence and potency in receptor assay.
A;Reference number: A60836; MUID:88113418; PMID:2828209
A;Accession: A60836
A;Molecule type: protein
A;Residues: 55-83 <HUA>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; carbohydrate metabolism; duplication; hormone; pancr
F;1-22/Domain: signal sequence #status predicted <SIG>
F;23-151/Product: proglucagon #status predicted <PGC>
F;55-83/Product: glucagon #status experimental <GCN>
F;118-147/Product: glucagon-like peptide 1 #status predicted <GL1>
F;147/Modified site: amidated carboxyl end (Arg) (amide in mature form from following g

  Query Match             92.3%;  Score 143;  DB 1;  Length 151;
  Best Local Similarity   86.7%;  Pred. No. 2.8e-13;
  Matches   26;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           |||||:|||::|||||||||||||||  ||
Db     118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGR 147


RESULT 10
I51301
proglucagon - chicken
C;Species: Gallus gallus (chicken)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51301
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcripts
A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51301
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-206 <IRW>
A;Cross-references: GB:S78477; NID:g999386; PIDN:AAB34506.1; PID:g999387
C;Superfamily: glucagon
C;Keywords: duplication

  Query Match             92.3%;  Score 143;  DB 2;  Length 206;
  Best Local Similarity   86.7%;  Pred. No. 4e-13;
  Matches   26;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           |||||:|||::|||||||||||||||  ||
Db     118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGR 147


RESULT 11
GCFGB
glucagon precursor - bullfrog (fragments)
N;Alternate names: oxyntomodulin
N;Contains: glucagon; glucagon-36 (oxyntomodulin); glucagon-like peptide 1; glucagon-li
C;Species: Rana catesbeiana (bullfrog)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 20-Mar-1998
C;Accession: B28091; C28091; D28091
R;Pollock, H.G.; Hamilton, J.W.; Rouse, J.B.; Ebner, K.E.; Rawitch, A.B.
J. Biol. Chem. 263, 9746-9751, 1988
A;Title: Isolation of peptide hormones from the pancreas of the bullfrog (Rana catesbei
A;Reference number: A92730; MUID:88257102; PMID:3260236
A;Accession: B28091
A;Molecule type: protein
A;Residues: 1-36 <PO2>
A;Accession: C28091
A;Molecule type: protein
A;Residues: 37-68 <POL>
A;Accession: D28091
A;Molecule type: protein
A;Residues: 69-101 <PO3>
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-36/Product: glucagon-36 (oxyntomodulin) #status experimental <G36>
F;1-29/Product: glucagon #status predicted <GCN>
F;37-67/Product: glucagon-like peptide 1 #status experimental <GL1>
F;69-101/Product: glucagon-like peptide 2 #status experimental <GL2>
```

Query Match 83.2%; Score 129; DB 1; Length 101;
Best Local Similarity 76.7%; Pred. No. 2e-11;
Matches 23; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

```
Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||:||||||:||||| :|||||: ||:|||
Db      37 HADGTFTSDMSSYLEEKAAKEFVDWLIKGR 66
```

RESULT 12
B61125
glucagon-like peptide - American eel
C;Species: Anguilla rostrata (American eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: B61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: B61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status predicted

Query Match 81.3%; Score 126; DB 2; Length 30;
Best Local Similarity 76.7%; Pred. No. 1.4e-11;
Matches 23; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

```
Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           |||||:||||||||: ||||||::||  ||
Db       1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30
```

RESULT 13
C61125
glucagon-like peptide - European eel
C;Species: Anguilla anguilla (European eel)
C;Date: 10-Mar-1994 #sequence_revision 10-Mar-1994 #text_change 21-Nov-1997
C;Accession: C61125
R;Conlon, J.M.; Andrews, P.C.; Thim, L.; Moon, T.W.
Gen. Comp. Endocrinol. 82, 23-32, 1991
A;Title: The primary structure of glucagon-like peptide but not insulin has been conserv
A;Reference number: A61125; MUID:91340068; PMID:1874385
A;Accession: C61125
A;Molecule type: protein
A;Residues: 1-30 <CON>
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; duplication
F;1-30/Product: glucagon-like peptide #status experimental <GLP>
F;30/Modified site: amidated carboxyl end (Arg) #status experimental

Query Match 81.3%; Score 126; DB 2; Length 30;
Best Local Similarity 76.7%; Pred. No. 1.4e-11;
Matches 23; Conservative 4; Mismatches 3; Indels 0; Gaps 0;

```
Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           |||||:||||||||: ||||||::||  ||
Db       1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30
```

RESULT 14
GCAF2
glucagon 2 precursor - American goosefish
N;Contains: glucagon; glucagon-like peptide 1
C;Species: Lophius americanus (American goosefish)
C;Date: 31-Mar-1993 #sequence_revision 31-Mar-1993 #text_change 21-Jul-2000
C;Accession: A05150
R;Lund, P.K.; Goodman, R.H.; Montminy, M.R.; Dee, P.C.; Habener, J.F.
J. Biol. Chem. 258, 3280-3284, 1983
A;Title: Anglerfish islet pre-proglucagon II. Nucleotide and corresponding amino acid se
A;Reference number: A05150; MUID:83135785; PMID:6338015
A;Accession: A05150
A;Molecule type: mRNA
A;Residues: 1-122 <LUN>
A;Cross-references: GB:J00933; NID:g64021; PIDN:CAA23905.1; PID:g64022
C;Superfamily: glucagon
C;Keywords: carbohydrate metabolism; duplication; hormone; pancreas
F;1-21/Domain: signal sequence #status predicted <SIG>
F;22-122/Product: proglucagon 2 #status predicted <PGC2>
F;52-80/Product: glucagon #status predicted <GCN>
F;89-119/Product: glucagon-like peptide 1 #status predicted <GL1>

Query Match 77.4%; Score 120; DB 1; Length 122;
Best Local Similarity 70.0%; Pred. No. 4.8e-10;
Matches 21; Conservative 6; Mismatches 3; Indels 0; Gaps 0;

```
Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||:||:||||||||: ||||:|::||  ||
Db      89 HADGTYTSDVSSYLQDQAAKDFVSWLKAGR 118
```

RESULT 15
I51093
glucagon - chinook salmon (fragment)
C;Species: Oncorhynchus tschawytscha (chinook salmon)
C;Date: 13-Sep-1996 #sequence_revision 13-Sep-1996 #text_change 16-Jul-1999
C;Accession: I51093
R;Irwin, D.M.; Wong, J.
Mol. Endocrinol. 9, 267-277, 1995
A;Title: Trout and chicken proglucagon: alternative splicing generates mRNA transcripts e
A;Reference number: A55895; MUID:95295739; PMID:7776976
A;Accession: I51093
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: mRNA
A;Residues: 1-66 <IRW>
A;Cross-references: EMBL:U19920; NID:g736366; PIDN:AAC59670.1; PID:g736367
C;Superfamily: glucagon
C;Keywords: duplication

Query Match 76.1%; Score 118; DB 2; Length 66;
Best Local Similarity 66.7%; Pred. No. 4.8e-10;
Matches 20; Conservative 7; Mismatches 3; Indels 0; Gaps 0;

```
Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||:||:|||||:||: ||||:|::||  ||
Db      33 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 62
```

Search completed: January 7, 2003, 16:24:48
Job time : 15 secs

OM protein - protein search, using sw model

Run on: January 7, 2003, 16:19:44 ; Search time 10 Seconds
(without alignments)
124.429 Million cell updates/sec

Title: US-09-830-323-1
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 112892 seqs, 41476328 residues

Total number of hits satisfying chosen parameters: 112892

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	158	1	GLUC_PIG	P01274 sus scrofa
2	155	100.0	180	1	GLUC_BOVIN	P01272 bos taurus
3	155	100.0	180	1	GLUC_CAVPO	P05110 cavia porce
4	155	100.0	180	1	GLUC_HUMAN	P01275 homo sapien
5	155	100.0	180	1	GLUC_MESAU	P01273 mesocricetu
6	155	100.0	180	1	GLUC_MOUSE	P55095 mus musculu
7	155	100.0	180	1	GLUC_OCTDE	P22890 octodon deg
8	155	100.0	180	1	GLUC_RAT	P06883 rattus norv
9	143	92.3	151	1	GLUC_CHICK	P01277 gallus gall
10	129	83.2	103	1	GLUC_RANCA	P15438 rana catesb
11	126	81.3	30	1	GLUM_ANGAN	P41521 anguilla an
12	120	77.4	122	1	GLU2_LOPAM	P04092 lophius ame
13	116	74.8	71	1	GLUC_ICTPU	P04093 ictalurus p
14	116	74.8	78	1	GLUC_LEPSP	P09566 lepisosteus
15	114	73.5	71	1	GLUC_PIAME	P81880 piaractus m
16	113	72.9	68	1	GLUC_ONCKI	P07449 oncorhynchu
17	110.5	71.3	33	1	GLU2_ORENI	P81027 oreochromis
18	110	71.0	121	1	GLUC_CARAU	P79695 carassius a
19	103	66.5	96	1	GLUC_MYOSC	P09686 myoxocephal
20	97	62.6	29	1	GLUC_TORMA	P09567 torpedo mar
21	96	61.9	124	1	GLU1_LOPAM	P01278 lophius ame
22	95	61.3	29	1	GLUC_SCYCA	P09687 scyliorhinu
23	93	60.0	29	1	GLUC_CALMI	P13189 callorhynch
24	90	58.1	29	1	GLUC_DIDMA	P18108 didelphis m
25	90	58.1	29	1	GLUC_LAMFL	Q9prq9 lampetra fl
26	90	58.1	29	1	GLUC_RABIT	P25449 oryctolagus
27	90	58.1	36	1	GLU1_ORENI	P81026 oreochromis
28	90	58.1	69	1	GLUC_CANFA	P29794 canis famil
29	88	56.8	29	1	GLUC_ANAPL	P01276 anas platyr
30	87	56.1	29	1	GLUC_CHIBR	P31297 chinchilla
31	87	56.1	87	1	EXE4_HELSU	P26349 heloderma s
32	86	55.5	29	1	GLUC_PLAFE	P23062 platichthys
33	85	54.8	39	1	EXE3_HELHO	P20394 heloderma h
34	83	53.5	75	1	GLUC_AMICA	P33528 amia calva
35	79	51.0	36	1	GLUC_HYDCO	P09682 hydrolagus
36	61	39.4	42	1	GIP_BOVIN	P09680 bos taurus
37	61	39.4	42	1	GIP_PIG	P01281 sus scrofa
38	61	39.4	144	1	GIP_MOUSE	P48756 mus musculu
39	61	39.4	144	1	GIP_RAT	Q06145 rattus norv
40	60	38.7	153	1	GIP_HUMAN	P09681 homo sapien
41	59	38.1	72	1	VIP_BOVIN	P81401 bos taurus
42	59	38.1	72	1	VIP_PIG	P01284 sus scrofa
43	59	38.1	72	1	VIP_RABIT	P32649 oryctolagus
44	59	38.1	170	1	VIP_HUMAN	P01282 homo sapien
45	59	38.1	170	1	VIP_MOUSE	P32648 mus musculu

ALIGNMENTS

RESULT 1
GLUC_PIG
ID GLUC_PIG STANDARD; PRT; 158 AA.
AC P01274;
DT 21-JUL-1986 (Rel. 01, Created)
DT 01-NOV-1990 (Rel. 16, Last sequence update)
DT 16-OCT-2001 (Rel. 40, Last annotation update)
DE Glucagon precursor [Contains: Glicentin; Glicentin-related polypeptide
DE (GRPP); Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like
DE peptide 2 (GLP2)] (Fragment).
GN GCG.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE OF 1-69.
RX MEDLINE=81248172; PubMed=6894800;
RA Thim L., Moody A.J.;
RT "The primary structure of porcine glicentin (proglucagon).";
RL Regul. Pept. 2:139-150(1981).
RN [2]
RP SEQUENCE OF 1-69.
RX MEDLINE=82221776; PubMed=7045833;
RA Thim L., Moody A.J.;
RT "The amino acid sequence of porcine glicentin.";
RL Peptides 2 Suppl. 2:37-39(1981).
RN [3]
RP SEQUENCE OF 33-61.
RA Bromer W.W., Sinn L.G., Behrens O.K.;
RT "The amino acid sequence of glucagon. V. Location of amide groups,
RT acid degradation studies and summary of sequential evidence.";
RL J. Am. Chem. Soc. 79:2807-2810(1957).
RN [4]
RP SEQUENCE OF 78-107.
RX MEDLINE=89327238; PubMed=2753890;
RA Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT "Complete sequences of glucagon-like peptide-1 from human and pig
RT small intestine.";
RL J. Biol. Chem. 264:12826-12829(1989).
RN [5]
RP SEQUENCE OF 111-158.
RX MEDLINE=88243712; PubMed=3379036;
RA Buhl T., Thim L., Kofod H., Orskov C., Harling H., Holst J.J.;
RT "Naturally occurring products of proglucagon 111-160 in the porcine
RT and human small intestine.";
RL J. Biol. Chem. 263:8621-8624(1988).
RN [6]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE=76051297; PubMed=171582;
RA Sasaki K., Dockerill S., Adamiak D.A., Tickle I.J., Blundell T.L.;
RT "X-ray analysis of glucagon and its relationship to receptor
RT binding.";
RL Nature 257:751-757(1975).
CC -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC RAISES THE BLOOD SUGAR LEVEL.

```
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       HUMAN SEQUENCE.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; A01540; GCPG.
DR   PDB; 1GCN; 30-SEP-83.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues;
KW   3D-structure.
FT   NON_TER       1      1
FT   PEPTIDE       1     69       GLICENTIN.
FT   PEPTIDE       1     30       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      33     61       GLUCAGON.
FT   PEPTIDE      78    107       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     126    158       GLUCAGON-LIKE PEPTIDE 2.
FT   HELIX         39     42
FT   TURN          43     45
FT   HELIX         46     55
FT   TURN          56     57
SQ   SEQUENCE   158 AA;  18212 MW;  28C6FCF257F333B2 CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 158;
  Best Local Similarity   100.0%;  Pred. No. 5e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||||||||||||||||||||||||||||||
Db      78 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 107


RESULT 2
GLUC_BOVIN
ID   GLUC_BOVIN     STANDARD;      PRT;   180 AA.
AC   P01272;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Bos taurus (Bovine).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC   Bovidae; Bovinae; Bos.
OX   NCBI_TaxID=9913;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83299996; PubMed=6577439;
RA   Lopez L.C., Frazier M.L., Su C.-J., Kumar A., Saunders G.F.;
RT   "Mammalian pancreatic preproglucagon contains three glucagon-related
RT   peptides.";
RL   Proc. Natl. Acad. Sci. U.S.A. 80:5485-5489(1983).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=71166445; PubMed=5102927;
RA   Bromer W.W., Boucher M.E., Koffenberger J.E. Jr.;
RT   "Amino acid sequence of bovine glucagon.";
RL   J. Biol. Chem. 246:2822-2827(1971).
RN   [3]
RP   STRUCTURE BY NMR OF 53-81.
RX   MEDLINE=71166445; PubMed=6631957;
RA   Braun W., Wider G., Lee K.H., Wuthrich K.;
RT   "Conformation of glucagon in a lipid-water interphase by 1H nuclear
RT   magnetic resonance.";
RL   J. Mol. Biol. 169:921-948(1983).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
CC   This SWISS-PROT entry is copyright. It is produced through a collaboration
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K00107; AAA30538.1; -.
DR   PIR; A01538; GCBO.
DR   PDB; 1KX6; 13-FEB-02.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   3D-structure.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20944 MW;  8D9B4FF05B9F15FF CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 5.7e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 3
GLUC_CAVPO
ID   GLUC_CAVPO     STANDARD;      PRT;   180 AA.
AC   P05110;
DT   13-AUG-1987 (Rel. 05, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-37 (Oxyntomodulin); Glucagon-like peptide 1 (GLP1);
DE   Glucagon-like peptide 2 (GLP2)].
GN   GCG.
OS   Cavia porcellus (Guinea pig).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Caviidae; Cavia.
OX   NCBI_TaxID=10141;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86248118; PubMed=3755107;
RA   Seino S., Welsh M., Bell G.I., Chan S.J., Steiner D.F.;
RT   "Mutations in the guinea pig preproglucagon gene are restricted to a
RT   specific portion of the prohormone sequence.";
RL   FEBS Lett. 203:25-30(1986).
RN   [2]
RP   SEQUENCE OF 53-81.
RX   MEDLINE=86165412; PubMed=3956884;
RA   Huang C.G., Eng J., Pan Y.-C.E., Hulmes J.D., Yalow R.S.;
RT   "Guinea pig glucagon differs from other mammalian glucagons.";
RL   Diabetes 35:508-512(1986).
RN   [3]
RP   PARTIAL SEQUENCE OF 53-89.
```

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RX   MEDLINE=86017849; PubMed=4048553;
RA   Conlon J.M., Hansen H.F., Schwartz T.W.;
RT   "Primary structure of glucagon and a partial sequence of
RT   oxyntomodulin (glucagon-37) from the guinea pig.";
RL   Regul. Pept. 11:309-320(1985).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; D00014; BAA00010.1; -.
DR   PIR; A24856; GCGP.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20
FT   PEPTIDE     21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     53     81       GLUCAGON.
FT   PEPTIDE     53     89       GLUCAGON-37.
FT   PEPTIDE     92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE    146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20972 MW;  702FB181161D2776 CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 5.7e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 4
GLUC_HUMAN
ID   GLUC_HUMAN     STANDARD;      PRT;   180 AA.
AC   P01275;
DT   21-JUL-1986 (Rel. 01, Created)
DT   13-AUG-1987 (Rel. 05, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Homo sapiens (Human).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX   NCBI_TaxID=9606;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=88330860; PubMed=2901414;
RA   Drucker D.J., Asa S.;
RT   "Glucagon gene expression in vertebrate brain.";
RL   J. Biol. Chem. 263:13475-13478(1988).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86259053; PubMed=3725587;
RA   White J.W., Saunders G.F.;
RT   "Structure of the human glucagon gene.";
RL   Nucleic Acids Res. 14:4719-4730(1986).
RN   [3]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Liver;
RX   MEDLINE=83271477; PubMed=6877358;
RA   Bell G.I., Sanchez-Pescador R., Laybourn P.J., Najarian R.C.;
RT   "Exon duplication and divergence in the human preproglucagon gene.";
RL   Nature 304:368-371(1983).
RN   [4]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreas;
RA   Strausberg R.;
RL   Submitted (MAR-2001) to the EMBL/GenBank/DDBJ databases.
RN   [5]
RP   SEQUENCE OF 53-81.
RA   Thomsen J., Kristiansen K., Brunfeldt K., Sundby F.;
RT   "The amino acid sequence of human glucagon.";
RL   FEBS Lett. 21:315-319(1972).
RN   [6]
RP   SEQUENCE OF 98-127.
RX   MEDLINE=89327238; PubMed=2753890;
RA   Orskov C., Bersani M., Johnsen A.H., Hoejrup P., Holst J.J.;
RT   "Complete sequences of glucagon-like peptide-1 from human and pig
RT   small intestine.";
RL   J. Biol. Chem. 264:12826-12829(1989).
RN   [7]
RP   X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS) OF 53-81.
RX   MEDLINE=98334683; PubMed=9667960;
RA   Sturm N.S., Lin Y., Burley S.K., Krstenansky J.L., Ahn J.M.,
RA   Azizeh B.Y., Trivedi D., Hruby V.J.;
RT   "Structure-function studies on positions 17, 18, and 21 replacement
RT   analogues of glucagon: the importance of charged residues and salt
RT   bridges in glucagon biological activity.";
RL   J. Med. Chem. 41:2693-2700(1998).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- PHARMACEUTICAL: Available under the names Glucagon (Eli Lilly) and
CC       GlucaGen or Glucagon Novo Nordisk (Novo Nordisk). Used to treat
CC       severe hypoglycemia in insulin-dependent diabetics.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   -!- DATABASE: NAME=Glucagon at Eli Lilly;
CC       NOTE=Clinical information on Eli Lilly glucagon products;
CC       WWW="http://www.lillyDiabetes.com/Products/PatientInfo.cfm".
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; J04040; AAA52567.1; -.
DR   EMBL; X03991; CAA27627.1; -.
DR   EMBL; V01515; CAA24759.1; -.
DR   EMBL; BC005278; AAH05278.1; -.
DR   PIR; A24377; GCHU.
DR   PIR; S23309; S23309.
DR   PDB; 1BH0; 18-NOV-98.
DR   Genew; HGNC:4191; GCG.
DR   MIM; 138030; -.
DR   MIM; 231530; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
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KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Pharmaceutical; 3D-structure.
FT   SIGNAL       1     20
FT   PEPTIDE      21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53    81       GLUCAGON.
FT   PEPTIDE      98    127      GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178      GLUCAGON-LIKE PEPTIDE 2.
FT   CONFLICT     82    82       K -> N (IN REF. 3).
SQ   SEQUENCE   180 AA;  20909 MW;  7A99EEC629B2862C CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 5.7e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 5
GLUC_MESAU
ID   GLUC_MESAU     STANDARD;      PRT;   180 AA.
AC   P01273;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-FEB-1996 (Rel. 33, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mesocricetus auratus (Golden hamster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC   Mesocricetus.
OX   NCBI_TaxID=10036;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83167563; PubMed=6835407;
RA   Bell G.I., Santerre R.F., Mullenbach G.T.;
RT   "Hamster preproglucagon contains the sequence of glucagon and two
RT   related peptides.";
RL   Nature 302:716-718(1983).
RN   [2]
RP   REVISIONS TO 12-15.
RA   Bell G.I.;
RL   Submitted (XXX-1985) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; J00059; AAA37074.1; -.
DR   PIR; A01539; GCHY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20
FT   PEPTIDE      21    50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53    81       GLUCAGON.
FT   PEPTIDE      92    128      GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178      GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20954 MW;  02791B49D7AADD4B CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 5.7e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 6
GLUC_MOUSE
ID   GLUC_MOUSE     STANDARD;      PRT;   180 AA.
AC   P55095;
DT   01-OCT-1996 (Rel. 34, Created)
DT   01-OCT-1996 (Rel. 34, Last sequence update)
DT   15-JUN-2002 (Rel. 41, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=Pancreatic islets;
RX   MEDLINE=95247722; PubMed=7730317;
RA   Rothenberg M.E., Eilertson C.D., Klein K., Zhou Y., Linberg I.,
RA   McDonald J.K., Mackin R.B., Noe B.D.;
RT   "Processing of mouse proglucagon by recombinant prohormone convertase
RT   1 and immunopurified prohormone convertase 2 in vitro.";
RL   J. Biol. Chem. 270:10136-10146(1995).
RN   [2]
RP   SEQUENCE FROM N.A.
RA   Shamsadin R., Knepel W.;
RT   "Mouse glucagon full length cDNA.";
RL   Submitted (JUN-2000) to the EMBL/GenBank/DDBJ databases.
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Z46845; CAA86902.1; -.
DR   EMBL; AF276754; AAK96898.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:95674; Gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE      21    50       GLICENTIN-RELATED POLYPEPTIDE.
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FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20906 MW;  595AA6DD9A589950 CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 5.7e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 7
GLUC_OCTDE
ID   GLUC_OCTDE     STANDARD;      PRT;   180 AA.
AC   P22890;
DT   01-AUG-1991 (Rel. 19, Created)
DT   01-AUG-1991 (Rel. 19, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Octodon degus (Degu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Hystricognathi; Octodontidae; Octodon.
OX   NCBI_TaxID=10160;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=91155952; PubMed=2293024;
RA   Nishi M., Steiner D.F.;
RT   "Cloning of complementary DNAs encoding islet amyloid polypeptide,
RT   insulin, and glucagon precursors from a New World rodent, the degu,
RT   Octodon degus.";
RL   Mol. Endocrinol. 4:1192-1198(1990).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; M57688; AAA40588.1; -.
DR   PIR; C36118; GCRTDU.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    127       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
FT   MOD_RES     127    127       AMIDATION (G-128 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   180 AA;  21165 MW;  6E8836160A9A3051 CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 5.7e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||||||||||||||||||||||||||||||
Db      98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 8
GLUC_RAT
ID   GLUC_RAT       STANDARD;      PRT;   180 AA.
AC   P06883;
DT   01-JAN-1988 (Rel. 06, Created)
DT   01-JAN-1988 (Rel. 06, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon; Glucagon-like peptide 1 (GLP1); Glucagon-like peptide 2
DE   (GLP2)].
GN   GCG.
OS   Rattus norvegicus (Rat).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX   NCBI_TaxID=10116;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85054853; PubMed=6094539;
RA   Heinrich G., Gros P., Habener J.F.;
RT   "Glucagon gene sequence. Four of six exons encode separate functional
RT   domains of rat pre-proglucagon.";
RL   J. Biol. Chem. 259:14082-14087(1984).
RN   [2]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=85051023; PubMed=6548696;
RA   Heinrich G., Gros P., Lund P.K., Bentley R.C., Habener J.F.;
RT   "Pre-proglucagon messenger ribonucleic acid: nucleotide and encoded
RT   amino acid sequences of the rat pancreatic complementary
RT   deoxyribonucleic acid.";
RL   Endocrinology 115:2176-2181(1984).
RN   [3]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=86304324; PubMed=3528148;
RA   Mojsov S., Heinrich G., Wilson I.B., Ravazzola M., Orci L.,
RA   Habener J.F.;
RT   "Preproglucagon gene expression in pancreas and intestine diversifies
RT   at the level of post-translational processing.";
RL   J. Biol. Chem. 261:11880-11889(1986).
CC   -!- FUNCTION: GLUCAGON PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND
CC       RAISES THE BLOOD SUGAR LEVEL.
CC   -!- FUNCTION: GLP2 STIMULATES INTESTINAL GROWTH AND UPREGULATES VILLUS
CC       HEIGHT IN THE SMALL INTESTINE, CONCOMITANT WITH INCREASED CRYPT
CC       CELL PROLIFERATION AND DECREASED ENTEROCYTE APOPTOSIS.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; K02813; AAA41235.1; -.
DR   EMBL; K02809; AAA41235.1; JOINED.
DR   EMBL; K02810; AAA41235.1; JOINED.
DR   EMBL; K02811; AAA41235.1; JOINED.
DR   EMBL; K02812; AAA41235.1; JOINED.
DR   PIR; A22655; GCRT.
DR   PIR; A44198; A44198.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
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DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 4.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL        1     20
FT   PEPTIDE      21     50       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      92    128       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     146    178       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   180 AA;  20846 MW;  76931409D03C7978 CRC64;

  Query Match             100.0%;  Score 155;  DB 1;  Length 180;
  Best Local Similarity   100.0%;  Pred. No. 5.7e-15;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db     98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127


RESULT 9
GLUC_CHICK
ID   GLUC_CHICK     STANDARD;      PRT;   151 AA.
AC   P01277;
DT   21-JUL-1986 (Rel. 01, Created)
DT   01-AUG-1990 (Rel. 15, Last sequence update)
DT   15-JUL-1999 (Rel. 38, Last annotation update)
DE   Glucagon precursor.
OS   Gallus gallus (Chicken), and
OS   Meleagris gallopavo (Common turkey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031, 9103;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   SPECIES=Chicken; TISSUE=Pancreas;
RX   MEDLINE=90249492; PubMed=2338135;
RA   Hasegawa S., Terazono K., Nata K., Takada T., Yamamoto H.,
RA   Okamoto H.;
RT   "Nucleotide sequence determination of chicken glucagon precursor
RT   cDNA. Chicken preproglucagon does not contain glucagon-like peptide
RT   II.";
RL   FEBS Lett. 264:117-120(1990).
RN   [2]
RP   SEQUENCE OF 55-83.
RC   SPECIES=Chicken;
RX   MEDLINE=76069271; PubMed=1194290;
RA   Pollock H.G., Kimmel J.R.;
RT   "Chicken glucagon. Isolation and amino acid sequence studies.";
RL   J. Biol. Chem. 250:9377-9380(1975).
RN   [3]
RP   COMPOSITION, AND SEQUENCE OF 55-83.
RC   SPECIES=M.gallopavo;
RX   MEDLINE=73074118; PubMed=4645932;
RA   Markussen J., Frandsen E.K., Heding L.G., Sundby F.;
RT   "Turkey glucagon: crystallization, amino acid composition and
RT   immunology.";
RL   Horm. Metab. Res. 4:360-363(1972).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: THE COMPOSITION OF TURKEY GLUCAGON APPEARS TO BE
CC       IDENTICAL WITH CHICKEN.
CC   -!- MISCELLANEOUS: CHICKEN PREPROGLUCAGON DOES NOT CONTAIN
CC       GLUCAGON-LIKE PEPTIDE II.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
CC   ---------------------------------------------------------------------
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------
DR   EMBL; Y07539; CAA68827.1; -.
DR   PIR; S09992; GCCH.
DR   PIR; A91740; A91740.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Amidation.
FT   SIGNAL        1     22
FT   CHAIN        23    151       PROGLUCAGON.
FT   PEPTIDE      55     83       GLUCAGON.
FT   PROPEP       86    118
FT   PEPTIDE     118    147       GLUCAGON-LIKE PEPTIDE.
FT   MOD_RES      147    147       AMIDATION (G-148 PROVIDE AMIDE GROUP).
SQ   SEQUENCE   151 AA;  17520 MW;  B6C0D87536C0AEB5 CRC64;

  Query Match             92.3%;  Score 143;  DB 1;  Length 151;
  Best Local Similarity   86.7%;  Pred. No. 2.4e-13;
  Matches   26;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          |||||:|||::|||||||||||||||| ||
Db    118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGR 147


RESULT 10
GLUC_RANCA
ID   GLUC_RANCA     STANDARD;      PRT;   103 AA.
AC   P15438; P15439; P15440;
DT   01-APR-1990 (Rel. 14, Created)
DT   01-JUL-1993 (Rel. 26, Last sequence update)
DT   01-JUL-1993 (Rel. 26, Last annotation update)
DE   Glucagon precursor (Fragments).
OS   Rana catesbeiana (Bull frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae; Rana.
OX   NCBI_TaxID=8400;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=88257102; PubMed=3260236;
RA   Pollock H.G., Hamilton J.W., Rouse J.B., Ebner K.E., Rawitch A.B.;
RT   "Isolation of peptide hormones from the pancreas of the bullfrog
RT   (Rana catesbeiana). Amino acid sequences of pancreatic polypeptide,
RT   oxyntomodulin, and two glucagon-like peptides.";
RL   J. Biol. Chem. 263:9746-9751(1988).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       OTHER SPECIES SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; B28091; GCFGB.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone.
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE       1     36       GLUCAGON-36 (OXYNTOMODULIN).
FT   PEPTIDE      39     70       GLUCAGON-LIKE PEPTIDE 1.
FT   NON_CONS     70     71
FT   PEPTIDE      71    103       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   103 AA;  11719 MW;  316287B7BAE1C8F7 CRC64;
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  Query Match             83.2%;  Score 129;  DB 1;  Length 103;
  Best Local Similarity   76.7%;  Pred. No. 1.6e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||:||||||:||||| :|||||: ||:|||
Db     39 HADGTFTSDMSSYLEEKAAKEFVDWLIKGR 68


RESULT 11
GLUM_ANGAN
ID   GLUM_ANGAN     STANDARD;      PRT;    30 AA.
AC   P41521;
DT   01-NOV-1995 (Rel. 32, Created)
DT   01-NOV-1995 (Rel. 32, Last sequence update)
DT   01-NOV-1995 (Rel. 32, Last annotation update)
DE   Glucagon-like peptide (GLP).
OS   Anguilla anguilla (European freshwater eel), and
OS   Anguilla rostrata (American eel).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Anguilliformes; Anguillidae;
OC   Anguilla.
OX   NCBI_TaxID=7936, 7938;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=91340068; PubMed=1874385;
RA   Conlon J.M., Andrews P.C., Thim L., Moon T.W.;
RT   "The primary structure of glucagon-like peptide but not insulin has
RT   been conserved between the American eel, Anguilla rostrata and the
RT   European eel, Anguilla anguilla.";
RL   Gen. Comp. Endocrinol. 82:23-32(1991).
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; B61125; B61125.
DR   PIR; C61125; C61125.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Glucagon family; Amidation.
FT   MOD_RES      30     30       AMIDATION.
SQ   SEQUENCE   30 AA;  3376 MW;  592DA5EABD6E49D0 CRC64;

  Query Match             81.3%;  Score 126;  DB 1;  Length 30;
  Best Local Similarity   76.7%;  Pred. No. 1.2e-11;
  Matches   23;  Conservative    4;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          |||||:||||||||: ||||||::||  ||
Db      1 HAEGTYTSDVSSYLQDQAAKEFVSWLKTGR 30


RESULT 12
GLU2_LOPAM
ID   GLU2_LOPAM     STANDARD;      PRT;   122 AA.
AC   P04092;
DT   01-NOV-1986 (Rel. 03, Created)
DT   01-NOV-1986 (Rel. 03, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon II precursor [Contains: Glicentin-related polypeptide (GRPP);
DE   Glucagon II; Glucagon-like peptide II].
OS   Lophius americanus (American goosefish) (Anglerfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Paracanthopterygii; Lophiiformes; Lophiidae; Lophius.
OX   NCBI_TaxID=8073;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=83135785; PubMed=6338015;
RA   Lund P.K., Goodman R.H., Montminy M.R., Dee P.C., Habener J.F.;
RT   "Anglerfish islet pre-proglucagon II. Nucleotide and corresponding
RT   amino acid sequence of the cDNA.";
RL   J. Biol. Chem. 258:3280-3284(1983).
RN   [2]
RP   PROCESSING.
RX   MEDLINE=86286913; PubMed=3526301;
RA   Noe B.D., Andrews P.C.;
RT   "Specific glucagon-related peptides isolated from anglerfish islets
RT   are metabolic cleavage products of (pre)proglucagon-II.";
RL   Peptides 7:331-339(1986).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
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CC   or send an email to license@isb-sib.ch).
CC   ---------------------------------------------------------------------------
DR   EMBL; V00632; CAA23905.1; -.
DR   PIR; A05150; GCAF2.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal.
FT   SIGNAL       1     21
FT   PEPTIDE     22     49       GLICENTIN-RELATED POLYPEPTIDE.
FT   PEPTIDE     52     80       GLUCAGON II.
FT   PROPEP      83     86
FT   PEPTIDE     89    119       GLUCAGON-LIKE PEPTIDE II.
SQ   SEQUENCE   122 AA;  14171 MW;  5140AC47EF915519 CRC64;

  Query Match             77.4%;  Score 120;  DB 1;  Length 122;
  Best Local Similarity   70.0%;  Pred. No. 3.6e-10;
  Matches   21;  Conservative    6;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||:||:||||||||: ||||:|::||  ||
Db     89 HADGTYTSDVSSYLQDQAAKDFVSWLKAGR 118


RESULT 13
GLUC_ICTPU
ID   GLUC_ICTPU     STANDARD;      PRT;    71 AA.
AC   P04093;
DT   01-NOV-1986 (Rel. 03, Created)
DT   01-MAR-1989 (Rel. 10, Last sequence update)
DT   01-NOV-1990 (Rel. 16, Last annotation update)
DE   Glucagon precursor (Fragment).
OS   Ictalurus punctatus (Channel catfish).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Siluriformes;
OC   Ictaluridae; Ictalurus.
OX   NCBI_TaxID=7998;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=87156787; PubMed=3030323;
RA   Hoosein N.M., Mahrenholz A.M., Andrews P.C., Gurd R.S.;
RT   "Biological activities of catfish glucagon and glucagon-like
RT   peptide.";
RL   Biochem. Biophys. Res. Commun. 143:87-92(1987).
RN   [2]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
```

```
RX   MEDLINE=85157536; PubMed=3838546;
RA   Andrews P.C., Ronner P.;
RT   "Isolation and structures of glucagon and glucagon-like peptide from
RT   catfish pancreas.";
RL   J. Biol. Chem. 260:3910-3914(1985).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       AMERICAN GOOSEFISH SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; A05166; GCIDC.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE      38     71       GLUCAGON-LIKE PEPTIDE.
FT   CONFLICT     53     53       E -> D (IN REF. 2).
FT   NON_TER      71     71
SQ   SEQUENCE   71 AA;  8173 MW;  24688E79AD981A8F CRC64;

  Query Match             74.8%;  Score 116;  DB 1;  Length 71;
  Best Local Similarity   70.0%;  Pred. No. 7.8e-10;
  Matches   21;  Conservative    5;  Mismatches    4;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||:||:||||||||: ||||:|| ||  |:
Db     38 HADGTYTSDVSSYLQEQAAKDFITWLKSGQ 67


RESULT 14
GLUC_LEPSP
ID   GLUC_LEPSP     STANDARD;      PRT;    78 AA.
AC   P09566;
DT   01-MAR-1989 (Rel. 10, Created)
DT   01-NOV-1990 (Rel. 16, Last sequence update)
DT   16-OCT-2001 (Rel. 40, Last annotation update)
DE   Glucagon precursor [Contains: Glucagon; Glucagon-36 (Oxyntomodulin);
DE   Glucagon-like peptide] (Fragment).
OS   Lepisosteus spatula (Alligator gar) (Atractosteus spatula).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Semionotiformes; Lepisosteidae;
OC   Lepisosteus.
OX   NCBI_TaxID=7917;
RN   [1]
RP   SEQUENCE OF 1-36 AND 45-78.
RC   TISSUE=Pancreas;
RX   MEDLINE=88196798; PubMed=3282974;
RA   Pollock H.G., Kimmel J.R., Ebner K.E., Hamilton J.W., Rouse J.B.,
RA   Lance V., Rawitch A.B.;
RT   "Isolation of alligator gar (Lepisosteus spatula) glucagon,
RT   oxyntomodulin, and glucagon-like peptide: amino acid sequences of
RT   oxyntomodulin and glucagon-like peptide.";
RL   Gen. Comp. Endocrinol. 69:133-140(1988).
RN   [2]
RP   PRELIMINARY SEQUENCE OF 1-29.
RC   TISSUE=Pancreas;
RX   MEDLINE=88030594; PubMed=3311873;
RA   Pollock H.G., Kimmel J.R., Hamilton J.W., Rouse J.B., Ebner K.E.,
RA   Lance V., Rawitch A.B.;
RT   "Isolation and structures of alligator gar (Lepisosteus spatula)
RT   insulin and pancreatic polypeptide.";
RL   Gen. Comp. Endocrinol. 67:375-382(1987).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       AMERICAN GOOSEFISH SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   PIR; S06339; GCGXA.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE       1     36       GLUCAGON-36.
FT   PEPTIDE      45     78       GLUCAGON-LIKE PEPTIDE.
SQ   SEQUENCE   78 AA;  8990 MW;  30106496271594E0 CRC64;

  Query Match             74.8%;  Score 116;  DB 1;  Length 78;
  Best Local Similarity   66.7%;  Pred. No. 8.6e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||:||:||||||||: ||||:|: || :|:
Db     45 HADGTYTSDVSSYLQDQAAKKFVTWLKQGQ 74


RESULT 15
GLUC_PIAME
ID   GLUC_PIAME     STANDARD;      PRT;    71 AA.
AC   P81880;
DT   30-MAY-2000 (Rel. 39, Created)
DT   30-MAY-2000 (Rel. 39, Last sequence update)
DT   30-MAY-2000 (Rel. 39, Last annotation update)
DE   Glucagon precursor (Fragment).
OS   Piaractus mesopotamicus (Pacu).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Characiformes;
OC   Characidae; Piaractus.
OX   NCBI_TaxID=42528;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=Pancreas;
RX   MEDLINE=99259587; PubMed=10327603;
RA   de Lima J.A., Oliveira B., Conlon J.M.;
RT   "Purification and characterization of insulin and peptides derived
RT   from proglucagon and prosomatostatin from the fruit-eating fish, the
RT   pacu Piaractus mesopotamicus.";
RL   Comp. Biochem. Physiol. 122B:127-135(1999).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS
CC       IN RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- MISCELLANEOUS: X'S IN THE SEQUENCE WERE INCLUDED BY HOMOLOGY WITH
CC       OTHER FISH SEQUENCES.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   NON_TER       1      1
FT   PEPTIDE       1     29       GLUCAGON.
FT   PEPTIDE      38     71       GLUCAGON-LIKE PEPTIDE.
FT   NON_TER      71     71
SQ   SEQUENCE   71 AA;  8146 MW;  F66A3CA2DD9806C5 CRC64;

  Query Match             73.5%;  Score 114;  DB 1;  Length 71;
  Best Local Similarity   66.7%;  Pred. No. 1.5e-09;
  Matches   20;  Conservative    6;  Mismatches    4;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||:||:|||||:||: ||||:|| ||  |:
Db     38 HADGTYTSDVSAYLQDQAAKDFITWLKSGQ 67
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Search completed: January 7, 2003, 16:23:50
Job time : 10 secs

GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: January 7, 2003, 16:22:14 ; Search time 29 Seconds
(without alignments)
213.152 Million cell updates/sec

Title: US-09-830-323-1
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 671580 seqs, 206047115 residues

Total number of hits satisfying chosen parameters: 671580

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_fungi:*
4: sp_human:*
5: sp_invertebrate:*
6: sp_mammal:*
7: sp_mhc:*
8: sp_organelle:*
9: sp_phage:*
10: sp_plant:*
11: sp_rodent:*
12: sp_virus:*
13: sp_vertebrate:*
14: sp_unclassified:*
15: sp_rvirus:*
16: sp_bacteriap:*
17: sp_archeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	180	6	Q95LG0	Q95lg0 canis famil
2	143	92.3	206	13	Q91410	Q91410 gallus gall
3	137	88.4	204	13	O12956	O12956 heloderma s
4	129	83.2	220	13	Q8UWL9	Q8uwl9 hoplobatrac
5	125	80.6	266	13	O42143	O42143 xenopus lae
6	120	77.4	219	13	O42144	O42144 xenopus lae
7	118	76.1	72	13	Q91409	Q91409 oncorhynchu
8	118	76.1	178	13	Q91971	Q91971 oncorhynchu
9	113	72.9	178	13	Q91189	Q91189 oncorhynchu
10	103	66.5	121	13	Q9DDE6	Q9dde6 brachydanio
11	102	65.8	160	13	Q9PUR1	Q9pur1 petromyzon
12	95	61.3	62	13	Q9PRW9	Q9prw9 scyliorhinu
13	90	58.1	96	13	Q9DG43	Q9dg43 ambloplites
14	83	53.5	120	13	Q9PUR0	Q9pur0 petromyzon
15	61	39.4	130	11	Q9CVF1	Q9cvf1 mus musculu
16	61	39.4	144	11	Q9D887	Q9d887 mus musculu
17	59	38.1	171	11	Q9D2Z7	Q9d2z7 mus musculu
18	59	38.1	389	2	Q93IH2	Q93ih2 wolinella s
19	58.5	37.7	426	16	P71006	P71006 bacillus su
20	54	34.8	172	13	Q9DE29	Q9de29 brachydanio
21	53.5	34.5	175	13	Q90XZ4	Q90xz4 ictalurus p
22	52.5	33.9	427	17	Q8TLY0	Q8tly0 methanosarc
23	52	33.5	138	13	Q98SP4	Q98sp4 oncorhynchu
24	52	33.5	171	13	Q9PUF8	Q9puf8 xenopus lae
25	52	33.5	173	13	Q98SP5	Q98sp5 oncorhynchu
26	51.5	33.2	285	17	Q8TPJ9	Q8tpj9 methanosarc
27	51	32.9	352	5	Q9XXQ1	Q9xxq1 caenorhabdi
28	51	32.9	810	4	Q9NTW8	Q9ntw8 homo sapien
29	51	32.9	867	4	Q9UFX9	Q9ufx9 homo sapien
30	50.5	32.6	175	13	Q98TU3	Q98tu3 brachydanio
31	50.5	32.6	210	5	Q95XL4	Q95xl4 caenorhabdi
32	50.5	32.6	224	16	Q8XW49	Q8xw49 ralstonia s
33	50.5	32.6	372	10	Q9XFW9	Q9xfw9 cicer ariet
34	50	32.3	89	13	Q98SP6	Q98sp6 anas platyr
35	50	32.3	171	10	Q9FGY5	Q9fgy5 arabidopsis
36	50	32.3	244	16	Q8Z1U5	Q8z1u5 salmonella
37	50	32.3	331	5	O18301	O18301 caenorhabdi
38	49.5	31.9	378	5	Q25062	Q25062 hydractinia
39	49.5	31.9	571	5	Q966F0	Q966f0 caenorhabdi
40	49.5	31.9	576	5	Q9BIJ4	Q9bij4 caenorhabdi
41	49.5	31.9	589	5	Q9N5B9	Q9n5b9 caenorhabdi
42	49.5	31.9	613	5	Q8WSP1	Q8wsp1 caenorhabdi
43	49.5	31.9	786	5	Q9N5B7	Q9n5b7 caenorhabdi
44	49.5	31.9	835	5	Q9N5B8	Q9n5b8 caenorhabdi
45	49	31.6	315	11	Q9D3P0	Q9d3p0 mus musculu

ALIGNMENTS

RESULT 1
Q95LG0
ID Q95LG0 PRELIMINARY; PRT; 180 AA.
AC Q95LG0;
DT 01-DEC-2001 (TrEMBLrel. 19, Created)
DT 01-DEC-2001 (TrEMBLrel. 19, Last sequence update)
DT 01-MAR-2002 (TrEMBLrel. 20, Last annotation update)
DE Preproglucagon.
OS Canis familiaris (Dog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID=9615;
RN [1]
RP SEQUENCE FROM N.A.
RA Irwin D.M.;
RT "cDNA cloning of proglucagon from the stomach and pancreas of the
RT dog.";
RL Submitted (SEP-2000) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AF308439; AAL09425.1; -.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 3.
DR PROSITE; PS00260; GLUCAGON; UNKNOWN_3.
SQ SEQUENCE 180 AA; 21114 MW; 80F66941AFC324FD CRC64;

Query Match 100.0%; Score 155; DB 6; Length 180;
Best Local Similarity 100.0%; Pred. No. 2.3e-15;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
||||||||||||||||||||||||||||||
Db 98 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 127

RESULT 2
Q91410
ID Q91410 PRELIMINARY; PRT; 206 AA.
AC Q91410;
DT 01-NOV-1996 (TrEMBLrel. 01, Created)
DT 01-NOV-1996 (TrEMBLrel. 01, Last sequence update)

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DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Proglucagon.
GN   PROGLUCAGON.
OS   Gallus gallus (Chicken).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC   Gallus.
OX   NCBI_TaxID=9031;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
DR   EMBL; S78477; AAB34506.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
SQ   SEQUENCE   206 AA;  23875 MW;  AB299E1B02FC6AA4 CRC64;

  Query Match             92.3%;  Score 143;  DB 13;  Length 206;
  Best Local Similarity   86.7%;  Pred. No. 1.8e-13;
  Matches   26;  Conservative    3;  Mismatches    1;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           |||||:|||::|||||||||||||||| ||
Db     118 HAEGTYTSDITSYLEGQAAKEFIAWLVNGR 147


RESULT 3
O12956
ID   O12956      PRELIMINARY;      PRT;   204 AA.
AC   O12956; O12955;
DT   01-JUL-1997 (TrEMBLrel. 04, Created)
DT   01-JUL-1997 (TrEMBLrel. 04, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon precursor.
OS   Heloderma suspectum (Gila monster).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Lepidosauria; Squamata; Scleroglossa; Anguimorpha; Helodermatidae;
OC   Heloderma.
OX   NCBI_TaxID=8554;
RN   [1]
RP   SEQUENCE FROM N.A., ALTERNATIVE SPLICING, AND TISSUE SPECIFICITY.
RC   TISSUE=INTESTINE, AND PANCREAS;
RX   MEDLINE=97172477; PubMed=9020121;
RA   Chen Y.E., Drucker D.J.;
RT   "Tissue-specific expression of unique mRNAs that encode proglucagon-
RT   derived peptides or exendin 4 in the lizard.";
RL   J. Biol. Chem. 272:4108-4115(1997).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; LPII (SHOWN HERE) AND LPI; ARE
CC       PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- TISSUE SPECIFICITY: ISOFORM LPII IS EXPRESSED IN BOTH PANCREAS AND
CC       INTESTINE. EXPRESSION OF ISOFORM LPI IS RESTRICTED TO THE
CC       PANCREAS. NEITHER ISOFORM IS DETECTED IN SALIVARY GLAND.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U77612; AAB51129.1; -.
DR   EMBL; U77611; AAB51128.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing.
FT   SIGNAL       1     20       BY SIMILARITY.
FT   PEPTIDE      21    50       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE      53    81       GLUCAGON.
FT   PEPTIDE     116    145      GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     164    196      GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC    149    149      D -> E (IN ISOFORM LPI).
FT   VARSPLIC    150    204      MISSING (IN ISOFORM LPI).
SQ   SEQUENCE   204 AA;  23553 MW;  B132E3FE46873E72 CRC64;

  Query Match             88.4%;  Score 137;  DB 13;  Length 204;
  Best Local Similarity   83.3%;  Pred. No. 1.4e-12;
  Matches   25;  Conservative    3;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           ||:| :|||:|||||||||||||||| ||
Db     116 HADGRYTSDISSYLEGQAAKEFIAWLVNGR 145


RESULT 4
Q8UWL9
ID   Q8UWL9      PRELIMINARY;      PRT;   220 AA.
AC   Q8UWL9;
DT   01-MAR-2002 (TrEMBLrel. 20, Created)
DT   01-MAR-2002 (TrEMBLrel. 20, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Proglucagon.
OS   Hoplobatrachus rugulosus.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Neobatrachia; Ranoidea; Ranidae;
OC   Hoplobatrachus.
OX   NCBI_TaxID=110072;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Yeung C.-M., Chow B.K.C.;
RT   "Identification of a proglucagon cDNA from Rana tigrina rugulosa that
RT   encodes two GLP-1s.";
RL   Gen. Comp. Endocrinol. 124:0-0(2001).
DR   EMBL; AF324209; AAL35758.1; -.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_4.
SQ   SEQUENCE   220 AA;  25615 MW;  C72D926E7F89E381 CRC64;

  Query Match             83.2%;  Score 129;  DB 13;  Length 220;
  Best Local Similarity   76.7%;  Pred. No. 2.5e-11;
  Matches   23;  Conservative    5;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           |||||||||::|||| :|||||: ||:|||
Db     135 HAEGTFTSDMTSYLEEKAAKEFVDWLIKGR 164


RESULT 5
O42143
ID   O42143      PRELIMINARY;      PRT;   266 AA.
AC   O42143;
DT   01-JAN-1998 (TrEMBLrel. 05, Created)
DT   01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon I precursor [Contains: Glucagon; glucagon-like peptide 1A
DE   (GLP-1A); glucagon-like peptide 1B (GLP-1B); glucagon-like peptide 1C
DE   (GLP-1C); glucagon-like peptide 2 (GLP-2)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=PANCREAS;
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RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; 1 (SHOWN HERE) AND 2; ARE
CC       PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF004432; AAB65660.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 5.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 5.
DR   PROSITE; PS00260; GLUCAGON; 5.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family; Alternative splicing.
FT   SIGNAL        1      ?       POTENTIAL.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      97    133       GLUCAGON-LIKE PEPTIDE 1A.
FT   PEPTIDE     142    173       GLUCAGON-LIKE PEPTIDE 1B.
FT   PEPTIDE     180    211       GLUCAGON-LIKE PEPTIDE 1C.
FT   PEPTIDE     227    259       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC    214    261       MISSING (IN ISOFORM 2).
SQ   SEQUENCE   266 AA;  30951 MW;  544F7BBC20AF872C CRC64;

  Query Match             80.6%;  Score 125;  DB 13;  Length 266;
  Best Local Similarity   70.0%;  Pred. No. 1.3e-10;
  Matches   21;  Conservative    7;  Mismatches    2;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          |||||||:|:::||| :|||||: ||:|||
Db    180 HAEGTFTNDMTNYLEEKAAKEFVGWLIKGR 209


RESULT 6
O42144
ID   O42144      PRELIMINARY;      PRT;   219 AA.
AC   O42144;
DT   01-JAN-1998 (TrEMBLrel. 05, Created)
DT   01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon II precursor [Contains: Glucagon; glucagon-like peptide 1A
DE   (GLP-1A); glucagon-like peptide 1B (GLP-1B); glucagon-like peptide 1C
DE   (GLP-1C)].
OS   Xenopus laevis (African clawed frog).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
OC   Xenopodinae; Xenopus.
OX   NCBI_TaxID=8355;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=PANCREAS;
RX   MEDLINE=97368292; PubMed=9223287;
RA   Irwin D.M., Satkunarajah M., Wen Y., Brubaker P.L., Pederson R.A.,
RA   Wheeler M.B.;
RT   "The Xenopus proglucagon gene encodes novel GLP-1-like peptides with
RT   insulinotropic properties.";
RL   Proc. Natl. Acad. Sci. U.S.A. 94:7915-7920(1997).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF004433; AAB65661.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 4.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 4.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL        1     20       POTENTIAL.
FT   PEPTIDE      53     81       GLUCAGON.
FT   PEPTIDE      97    133       GLUCAGON-LIKE PEPTIDE 1A.
FT   PEPTIDE     142    173       GLUCAGON-LIKE PEPTIDE 1B.
FT   PEPTIDE     180    211       GLUCAGON-LIKE PEPTIDE 1C.
SQ   SEQUENCE   219 AA;  25271 MW;  ACC699233C362CE0 CRC64;

  Query Match             77.4%;  Score 120;  DB 13;  Length 219;
  Best Local Similarity   66.7%;  Pred. No. 5.7e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          |||||||:|:::||| :|||||: ||: ||
Db    180 HAEGTFTNDMTNYLEEKAAKEFVGWLINGR 209


RESULT 7
Q91409
ID   Q91409      PRELIMINARY;      PRT;    72 AA.
AC   Q91409; Q91232;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   PROGLUCAGON (Fragment).
OS   Oncorhynchus tschawytscha (Chinook salmon) (King salmon).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=74940;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
DR   EMBL; S78474; AAD14283.1; -.
DR   EMBL; U19920; AAC59670.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_1.
FT   NON_TER       1      1
SQ   SEQUENCE   72 AA;  8293 MW;  8584352B1C260A31 CRC64;

  Query Match             76.1%;  Score 118;  DB 13;  Length 72;
  Best Local Similarity   66.7%;  Pred. No. 3.1e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||:||:|||||:||: ||||:|::||  ||
Db     39 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 68


RESULT 8
Q91971
ID   Q91971      PRELIMINARY;      PRT;   178 AA.
AC   Q91971; Q91408; Q91188; Q92169;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon I precursor.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
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RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19913; AAC59667.1; -.
DR   EMBL; U19917; AAC59669.1; -.
DR   EMBL; U19918; AAC60212.1; -.
DR   EMBL; U19919; AAC60213.1; -.
DR   EMBL; U19918; AAC60213.1; JOINED.
DR   EMBL; S78475; AAB34505.1; -.
DR   EMBL; S78473; AAB34504.2; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; 3.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL        1      ?       POTENTIAL.
FT   PEPTIDE       ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE      52     80       GLUCAGON.
FT   PEPTIDE      85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC    124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  20034 MW;  5CF6980CF2A9D58E CRC64;

  Query Match             76.1%;  Score 118;  DB 13;  Length 178;
  Best Local Similarity   66.7%;  Pred. No. 9e-10;
  Matches   20;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||:||:|||||:||: ||||:|::||  ||
Db     90 HADGTYTSDVSTYLQDQAAKDFVSWLKSGR 119


RESULT 9
Q91189
ID   Q91189      PRELIMINARY;      PRT;   178 AA.
AC   Q91189; Q92168;
DT   01-NOV-1996 (TrEMBLrel. 01, Created)
DT   01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
DT   01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
DE   Glucagon II precursor.
OS   Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC   Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX   NCBI_TaxID=8022;
RN   [1]
RP   SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC   TISSUE=DISTAL SMALL INTESTINE, AND PANCREAS;
RX   MEDLINE=95295739; PubMed=7776976;
RA   Irwin D.M., Wong J.;
RT   "Trout and chicken proglucagon: alternative splicing generates mRNA
RT   transcripts encoding glucagon-like peptide 2.";
RL   Mol. Endocrinol. 9:267-277(1995).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL (BY SIMILARITY).
CC   -!- ALTERNATIVE PRODUCTS: 2 ISOFORMS; INTESTINAL (SHOWN HERE) AND
CC       PANCREATIC; ARE PRODUCED BY ALTERNATIVE SPLICING.
CC   -!- INDUCTION: PRODUCED IN THE A CELLS OF THE ISLETS OF LANGERHANS IN
CC       RESPONSE TO A DROP IN BLOOD SUGAR CONCENTRATION.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; U19914; AAC59668.1; -.
DR   EMBL; U19916; AAC60210.1; -.
DR   EMBL; U19915; AAC60210.1; JOINED.
DR   EMBL; U19915; AAC60209.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 3.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 3.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_2.
KW   Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW   Alternative splicing; Multigene family.
FT   SIGNAL        1      ?       POTENTIAL.
FT   PEPTIDE       ?     49       GRPP (GLICENTINE RELATED POLYPEPTIDE).
FT   PEPTIDE      52     80       GLUCAGON.
FT   PEPTIDE      85    120       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     137    169       GLUCAGON-LIKE PEPTIDE 2.
FT   VARSPLIC    124    178       MISSING (IN PANCREATIC ISOFORM).
SQ   SEQUENCE   178 AA;  19998 MW;  E89D73866CD91C66 CRC64;

  Query Match             72.9%;  Score 113;  DB 13;  Length 178;
  Best Local Similarity   65.5%;  Pred. No. 5.1e-09;
  Matches   19;  Conservative    7;  Mismatches    3;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKG 29
          ||:||:|||||:||: ||||:|::||  |
Db     90 HADGTYTSDVSTYLQDQAAKDFVSWLKSG 118


RESULT 10
Q9DDE6
ID   Q9DDE6      PRELIMINARY;      PRT;   121 AA.
AC   Q9DDE6;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Glucagon polyprotein.
GN   GCG OR GLU.
OS   Brachydanio rerio (Zebrafish) (Zebra danio).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC   Cyprinidae; Danio.
OX   NCBI_TaxID=7955;
RN   [1]
RP   SEQUENCE FROM N.A.
RX   MEDLINE=99425190; PubMed=10495291;
RA   Argenton F., Zecchin E., Bortolussi M.;
RT   "Early appearance of pancreatic hormone-expressing cells in the
RT   zebrafish embryo.";
RL   Mech. Dev. 87:217-221(1999).
DR   EMBL; AJ133697; CAC20108.1; -.
DR   HSSP; P01274; 1GCN.
DR   ZFIN; ZDB-GENE-010219-1; gcg.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 1.
KW   Polyprotein.
FT   CHAIN        49     79       GLUCAGON.
FT   CHAIN        88    121       GLUCAGON-LIKE PEPTIDE 1.
SQ   SEQUENCE   121 AA;  13537 MW;  A85385F690DA180F CRC64;

  Query Match             66.5%;  Score 103;  DB 13;  Length 121;
  Best Local Similarity   66.7%;  Pred. No. 1.1e-07;
  Matches   20;  Conservative    5;  Mismatches    5;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          |||||:||||||||: |||: |:| |  |:
Db     88 HAEGTYTSDVSSYLQDQAAQRFVARLKSGQ 117


RESULT 11
Q9PUR1
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ID   Q9PUR1      PRELIMINARY;      PRT;   160 AA.
AC   Q9PUR1; Q9PRZ8; Q9PRZ7;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Glucagon I precursor [Contains: Glucagon; glucagon-like peptide 1
DE   (GLP-1); glucagon-like peptide 2 (GLP-2)].
OS   Petromyzon marinus (Sea lamprey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Hyperoartia;
OC   Petromyzontiformes; Petromyzontidae; Petromyzon.
OX   NCBI_TaxID=7757;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=INTESTINE;
RX   MEDLINE=20022986; PubMed=10555286;
RA   Irwin D.M., Huner O., Youson J.H.;
RT   "Lamprey proglucagon and the origin of glucagon-like peptides.";
RL   Mol. Biol. Evol. 16:1548-1557(1999).
RN   [2]
RP   SEQUENCE OF 43-71 AND 82-113.
RC   TISSUE=INTESTINE;
RX   MEDLINE=94010172; PubMed=8405897;
RA   Conlon J.M., Nielsen P.F., Youson J.H.;
RT   "Primary structures of glucagon and glucagon-like peptide isolated
RT   from the intestine of the parasitic phase lamprey Petromyzon
RT   marinus.";
RL   Gen. Comp. Endocrinol. 91:96-104(1993).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF159707; AAF09186.1; -.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL        1     22       POTENTIAL.
FT   PEPTIDE      43     71       GLUCAGON.
FT   PEPTIDE      82    113       GLUCAGON-LIKE PEPTIDE 1.
FT   PEPTIDE     130    160       GLUCAGON-LIKE PEPTIDE 2.
SQ   SEQUENCE   160 AA;  18042 MW;  9A52C530D5A74072 CRC64;

  Query Match             65.8%;  Score 102;  DB 13;  Length 160;
  Best Local Similarity   53.6%;  Pred. No. 2.1e-07;
  Matches   15;  Conservative   11;  Mismatches    2;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVK 28
           ||:||||:|::|||: :||::|::|| :
Db      82 HADGTFTNDMTSYLDAKAARDFVSWLAR 109


RESULT 12
Q9PRW9
ID   Q9PRW9      PRELIMINARY;      PRT;    62 AA.
AC   Q9PRW9; Q9PRX0; Q9PRW8;
DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
DE   Glucagon precursor [Contains: glucagon-29; glucagon-33; glucagon-like
DE   peptide] (Fragments).
OS   Scyliorhinus canicula (Spotted dogfish) (Spotted catshark).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Chondrichthyes;
OC   Elasmobranchii; Galeomorphii; Galeoidea; Carcharhiniformes;
OC   Scyliorhinidae; Scyliorhinus.
OX   NCBI_TaxID=7830;
RN   [1]
RP   SEQUENCE.
RC   TISSUE=PANCREAS;
RX   MEDLINE=94286411; PubMed=8015974;
RA   Conlon J.M., Hazon N., Thim L.;
RT   "Primary structures of peptides derived from proglucagon isolated from
RT   the pancreas of the elasmobranch fish, Scyliorhinus canicula.";
RL   Peptides 15:163-167(1994).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone.
FT   PEPTIDE       1     29       GLUCAGON-29.
FT   PEPTIDE       1     33       GLUCAGON-33.
FT   NON_CONS     33     34
FT   PEPTIDE      34     62       GLUCAGON-LIKE PEPTIDE.
SQ   SEQUENCE   62 AA;  7270 MW;  C5FF487C12C69CD1 CRC64;

  Query Match             61.3%;  Score 95;  DB 13;  Length 62;
  Best Local Similarity   55.6%;  Pred. No. 7.9e-07;
  Matches   15;  Conservative    7;  Mismatches    5;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           |:|||||| | |:: : ||:|: ||:
Db       1 HSEGTFTSDYSKYMDNRRAKDFVQWLM 27


RESULT 13
Q9DG43
ID   Q9DG43      PRELIMINARY;      PRT;    96 AA.
AC   Q9DG43;
DT   01-MAR-2001 (TrEMBLrel. 16, Created)
DT   01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Proglucagon (Fragment).
OS   Ambloplites rupestris.
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei;
OC   Acanthomorpha; Acanthopterygii; Percomorpha; Perciformes; Percoidei;
OC   Centrarchidae; Ambloplites.
OX   NCBI_TaxID=109273;
RN   [1]
RP   SEQUENCE FROM N.A.
RA   Al-Mahrouki A.A., Irwin D.M., Youson J.H.;
RT   "Rock Bass Proglucagon.";
RL   Submitted (SEP-1999) to the EMBL/GenBank/DDBJ databases.
DR   EMBL; AF190499; AAG16778.1; -.
DR   HSSP; P01274; 1GCN.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; UNKNOWN_1.
FT   NON_TER       1      1
FT   CHAIN         1    >29       GLUCAGON.
FT   CHAIN        39    >70       GLUCAGON-LIKE PEPTIDE 1.
FT   CHAIN        86    >96       GLUCAGON-LIKE PEPTIDE 2.
FT   NON_TER      96     96
SQ   SEQUENCE   96 AA;  11225 MW;  6435033EBDDC00CE CRC64;

  Query Match             58.1%;  Score 90;  DB 13;  Length 96;
  Best Local Similarity   46.7%;  Pred. No. 7.5e-06;
  Matches   14;  Conservative   10;  Mismatches    6;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           |::||||:| ::||| : |::|| ||:  :
Db       1 HSQGTFTNDYTNYLEDRQAQDFIRWLMNNK 30


RESULT 14
Q9PUR0
ID   Q9PUR0      PRELIMINARY;      PRT;   120 AA.
AC   Q9PUR0;
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DT   01-MAY-2000 (TrEMBLrel. 13, Created)
DT   01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Glucagon II precursor [Contains: Glucagon; glucagon-like peptide
DE   (GLP)].
OS   Petromyzon marinus (Sea lamprey).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Hyperoartia;
OC   Petromyzontiformes; Petromyzontidae; Petromyzon.
OX   NCBI_TaxID=7757;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   TISSUE=INTESTINE;
RX   MEDLINE=20022986; PubMed=10555286;
RA   Irwin D.M., Huner O., Youson J.H.;
RT   "Lamprey proglucagon and the origin of glucagon-like peptides.";
RL   Mol. Biol. Evol. 16:1548-1557(1999).
CC   -!- FUNCTION: PROMOTES HYDROLYSIS OF GLYCOGEN AND LIPIDS, AND RAISES
CC       THE BLOOD SUGAR LEVEL.
CC   -!- SIMILARITY: BELONGS TO THE GLUCAGON FAMILY.
DR   EMBL; AF159708; AAF09187.1; -.
DR   HSSP; P01275; 1BH0.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 2.
DR   PRINTS; PR00275; GLUCAGON.
DR   SMART; SM00070; GLUCA; 2.
DR   PROSITE; PS00260; GLUCAGON; 2.
KW   Glucagon family; Hormone; Signal; Cleavage on pair of basic residues;
KW   Multigene family.
FT   SIGNAL        1      ?       POTENTIAL.
FT   PEPTIDE      44     72       GLUCAGON.
FT   PEPTIDE      89    120       GLUCAGON-LIKE PEPTIDE.
SQ   SEQUENCE   120 AA;  13397 MW;  FBDE667B96E198D8 CRC64;

  Query Match             53.5%;  Score 83;  DB 13;  Length 120;
  Best Local Similarity   48.1%;  Pred. No. 0.00011;
  Matches   13;  Conservative    9;  Mismatches    5;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLV 27
           |::|:|||| | :|: : ||:|: ||:
Db      44 HSQGSFTSDYSKHLDVKQAKDFVTWLL 70


RESULT 15
Q9CVF1
ID   Q9CVF1      PRELIMINARY;      PRT;   130 AA.
AC   Q9CVF1;
DT   01-JUN-2001 (TrEMBLrel. 17, Created)
DT   01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT   01-DEC-2001 (TrEMBLrel. 19, Last annotation update)
DE   Gastric inhibitory polypeptide (Fragment).
GN   GIP.
OS   Mus musculus (Mouse).
OC   Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC   Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX   NCBI_TaxID=10090;
RN   [1]
RP   SEQUENCE FROM N.A.
RC   STRAIN=C57BL/6J; TISSUE=SMALL INTESTINE;
RX   MEDLINE=21085660; PubMed=11217851;
RA   Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA   Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA   Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA   Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA   Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA   Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA   Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA   Schriml L.M., Staubli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA   Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA   Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA   Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA   Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA   Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA   Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA   Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA   Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA   Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA   Hayashizaki Y.;
RT   "Functional annotation of a full-length mouse cDNA collection.";
RL   Nature 409:685-690(2001).
DR   EMBL; AK008525; BAB25720.1; -.
DR   HSSP; P01274; 1GCN.
DR   MGD; MGI:107504; Gip.
DR   InterPro; IPR000532; Glucagon.
DR   Pfam; PF00123; hormone2; 1.
DR   SMART; SM00070; GLUCA; 1.
DR   PROSITE; PS00260; GLUCAGON; 1.
FT   NON_TER       1      1
SQ   SEQUENCE   130 AA;  14906 MW;  95B3B6E91E2A7992 CRC64;

  Query Match             39.4%;  Score 61;  DB 11;  Length 130;
  Best Local Similarity   40.0%;  Pred. No. 0.26;
  Matches   12;  Conservative    7;  Mismatches   11;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
           :|||| || |  ::    ::|: ||:  |
Db      30 YAEGTFISDYSIAMDKIRQQDFVNWLLAQR 59


Search completed: January  7, 2003, 16:24:27
Job time : 30 secs
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GenCore version 5.1.3

OM protein - protein search, using sw model

Run on: January 7, 2003, 16:22:54 ; Search time 15 Seconds
(without alignments)
58.846 Million cell updates/sec

Title: US-09-830-323-1
Perfect score: 155
Sequence: 1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 262574 seqs, 29422922 residues

Total number of hits satisfying chosen parameters: 262574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Issued_Patents_AA:*
1: /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
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4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
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6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	DB	ID	Description
1	155	100.0	30	1	US-08-066-480-6	Sequence 6, Appli
2	155	100.0	30	1	US-08-095-162-1	Sequence 1, Appli
3	155	100.0	30	1	US-08-470-220A-1	Sequence 1, Appli
4	155	100.0	30	2	US-08-927-227-1	Sequence 1, Appli
5	155	100.0	30	3	US-08-967-374-1	Sequence 1, Appli
6	155	100.0	30	4	US-09-348-136-1	Sequence 1, Appli
7	155	100.0	30	4	US-08-961-405A-5	Sequence 5, Appli
8	155	100.0	30	4	US-08-915-918A-5	Sequence 5, Appli
9	155	100.0	30	4	US-09-302-596-4	Sequence 4, Appli
10	155	100.0	30	4	US-08-472-349-3	Sequence 3, Appli
11	155	100.0	30	4	US-09-333-415-4	Sequence 4, Appli
12	155	100.0	30	4	US-09-585-181A-4	Sequence 4, Appli
13	155	100.0	30	4	US-09-209-799D-10	Sequence 10, Appl
14	155	100.0	30	4	US-09-975-905-1	Sequence 1, Appli
15	155	100.0	30	4	US-09-505-991-1	Sequence 1, Appli
16	155	100.0	30	4	US-09-573-809-1	Sequence 1, Appli
17	155	100.0	30	4	US-09-303-016-4	Sequence 4, Appli
18	155	100.0	30	4	US-09-212-663-4	Sequence 4, Appli
19	155	100.0	30	5	PCT-US95-15800-27	Sequence 27, Appl
20	155	100.0	31	1	US-09-025-951-1	Sequence 1, Appli
21	155	100.0	31	1	US-08-095-162-3	Sequence 3, Appli
22	155	100.0	31	1	US-08-295-913A-1	Sequence 1, Appli
23	155	100.0	31	1	US-08-470-220A-3	Sequence 3, Appli
24	155	100.0	31	2	US-08-807-263-3	Sequence 3, Appli
25	155	100.0	31	3	US-08-967-374-3	Sequence 3, Appli
26	155	100.0	31	4	US-08-961-405A-1	Sequence 1, Appli
27	155	100.0	31	4	US-08-915-918A-1	Sequence 1, Appli
28	155	100.0	31	4	US-09-302-596-3	Sequence 3, Appli
29	155	100.0	31	4	US-08-472-349-2	Sequence 2, Appli
30	155	100.0	31	4	US-09-623-618B-2	Sequence 2, Appli
31	155	100.0	31	4	US-09-623-618B-17	Sequence 17, Appl
32	155	100.0	31	4	US-09-623-618B-27	Sequence 27, Appl
33	155	100.0	31	4	US-09-623-618B-28	Sequence 28, Appl
34	155	100.0	31	4	US-09-333-415-3	Sequence 3, Appli
35	155	100.0	31	4	US-09-209-799D-1	Sequence 1, Appli
36	155	100.0	31	4	US-09-265-141A-1	Sequence 1, Appli
37	155	100.0	31	4	US-09-505-991-3	Sequence 3, Appli
38	155	100.0	31	4	US-09-303-016-3	Sequence 3, Appli
39	155	100.0	31	4	US-09-212-663-3	Sequence 3, Appli
40	155	100.0	31	5	PCT-US95-15800-28	Sequence 28, Appl
41	155	100.0	33	4	US-09-212-663-23	Sequence 23, Appl
42	155	100.0	34	4	US-09-212-663-1	Sequence 1, Appli
43	155	100.0	34	4	US-09-212-663-25	Sequence 25, Appl
44	155	100.0	36	1	US-08-095-162-15	Sequence 15, Appl
45	155	100.0	36	1	US-08-470-220A-15	Sequence 15, Appl

ALIGNMENTS

RESULT 1
US-08-066-480-6
; Sequence 6, Application US/08066480
; Patent No. 5424286
; GENERAL INFORMATION:
; APPLICANT: Eng, John
; TITLE OF INVENTION: Pharmaceutical Compositions And Use of
; TITLE OF INVENTION: Exendin-3 and Exendin-4 for Treatment of Diabetes Mellitus
; NUMBER OF SEQUENCES: 7
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Allegretti & Witcoff, Ltd.
; STREET: 10 S. Wacker Drive
; CITY: Chicago
; STATE: Illinois
; COUNTRY: USA
; ZIP: 60606
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/066,480
; FILING DATE: 24-MAR-1993
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: McDonnell, John J
; REGISTRATION NUMBER: 26,949
; REFERENCE/DOCKET NUMBER: 93,084
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 312-715-1000
; TELEFAX: 312-715-1234
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 30 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; FEATURE:
; NAME/KEY: Peptide
; LOCATION: 1..30
; OTHER INFORMATION: /label= GLP-1-7-36
; OTHER INFORMATION: /note= "GLP-1(7-36) fragment"
US-08-066-480-6

Query Match 100.0%; Score 155; DB 1; Length 30;
Best Local Similarity 100.0%; Pred. No. 4.2e-16;
Matches 30; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 2
US-08-095-162-1
; Sequence 1, Application US/08095162
; Patent No. 5512459
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5512459west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/095,162
;      FILING DATE:  20-JUL-1993
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 7-36-NH2  (Glucagon-like Peptide)
US-08-095-162-1

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 3
US-08-470-220A-1
; Sequence 1, Application US/08470220A
; Patent No. 5707826
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 5707826west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/470,220A
;      FILING DATE:  06-JUN-1995
;      CLASSIFICATION:  435
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 08/095,162
;      FILING DATE:  20-JUL-1993
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Nelson, Albin J.
;      REGISTRATION NUMBER:  28,659
;      REFERENCE/DOCKET NUMBER:  8648.32-US01
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 7-36-NH2  (Glucagon-like Peptide)
US-08-470-220A-1

  Query Match             100.0%;  Score 155;  DB 1;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 4
US-08-927-227-1
; Sequence 1, Application US/08927227A
; Patent No. 5977071
; GENERAL INFORMATION:
;  APPLICANT: Galloway, James A.
;  APPLICANT: Hoffmann, James A.
;  TITLE OF INVENTION: GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALGOGS,
;  TITLE OF INVENTION: COMPOSITIONS AND METHODS
;  FILE REFERENCE: X-9332B
;  CURRENT APPLICATION NUMBER: US/08/927,227A
;  CURRENT FILING DATE: 1997-09-10
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   OTHER INFORMATION: The arginine residue at position 30 is modified so
;   OTHER INFORMATION: as to replace the terminal carboxyl group with an
;   OTHER INFORMATION: amine.
US-08-927-227-1

  Query Match             100.0%;  Score 155;  DB 2;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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RESULT 5
US-08-967-374-1
; Sequence 1, Application US/08967374
; Patent No. 6037143
;  GENERAL INFORMATION:
;    APPLICANT:  Wagner, Fred W.
;    APPLICANT:  Stout, Jay
;    APPLICANT:  Henriksen, Dennis
;    APPLICANT:  Partridge, Bruce
;    APPLICANT:  Manning, Shane
;    TITLE OF INVENTION:  Enzymatic Method for Modification of
;    TITLE OF INVENTION:  Recombinant Polypeptides
;    NUMBER OF SEQUENCES:  26
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Merchant & Gould
;      STREET:  3100 No. 6037143west Center
;      CITY:  Minneapolis
;      STATE:  MN
;      COUNTRY:  USA
;      ZIP:  55402
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/967,374
;      FILING DATE:
;      CLASSIFICATION:
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  08/520,485
;      FILING DATE:  29-AUG-1995
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Carter, Charles G.
;      REGISTRATION NUMBER:  35,093
;      REFERENCE/DOCKET NUMBER:  8648.32-USD1
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  612-332-5300
;      TELEFAX:  612-332-9081
;  INFORMATION FOR SEQ ID NO:  1:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    IMMEDIATE SOURCE:
;      CLONE:  GLP1 7-36-NH2  (Glucagon-like Peptide)
US-08-967-374-1

  Query Match             100.0%;  Score 155;  DB 3;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 6
US-09-348-136-1
; Sequence 1, Application US/09348136
; Patent No. 6133235
; GENERAL INFORMATION:
;  APPLICANT:  Galloway, James A.
;  APPLICANT:  Hoffmann, James A.
;  TITLE OF INVENTION:  GLUCAGON-LIKE INSULINOTROPIC PEPTIDE ANALGOGS,
;  TITLE OF INVENTION:  COMPOSITIONS AND METHODS
;  FILE REFERENCE:  X-9332B
;  CURRENT APPLICATION NUMBER: US/09/348,136
;  CURRENT FILING DATE:  1999-07-06
;  PRIOR APPLICATION NUMBER:  US 08/927,227
;  PRIOR FILING DATE:  1997-09-10
;  NUMBER OF SEQ ID NOS:  1
;  SOFTWARE:  PatentIn Ver. 2.0
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   OTHER INFORMATION: The arginine residue at position 30 is modified so
;   OTHER INFORMATION: as to replace the terminal carboxyl group with an
;   OTHER INFORMATION: amine.
US-09-348-136-1

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 7
US-08-961-405A-5
; Sequence 5, Application US/08961405A
; Patent No. 6191102
;  GENERAL INFORMATION:
;    APPLICANT:  DiMarchi, Richard D.
;    APPLICANT:  Efendic, Suad
;    TITLE OF INVENTION:  USE OF GLP-1 ANALOGS AND DERIVATIVES
;    TITLE OF INVENTION:  ADMINISTERED PERIPHERALLY IN REGULATION OF OBESITY
;    NUMBER OF SEQUENCES:  9
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  BARNES & THORNBURG
;      STREET:  200 W. Madison, Suite 2601
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60606
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/961,405A
;      FILING DATE:  30-OCT-1997
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US 60/030,213
;      FILING DATE:  05-NOV-1996
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Martin, Alice O.
;      REGISTRATION NUMBER:  35,601
;      REFERENCE/DOCKET NUMBER:  3051/90264
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  312-357-1313
;      TELEFAX:  312-759-5646
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-961-405A-5

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 8
US-08-915-918A-5
; Sequence 5, Application US/08915918A
; Patent No. 6277819
;  GENERAL INFORMATION:
;    APPLICANT:  Efendic, Suad
;    TITLE OF INVENTION:  USE OF GLP-1 OR ANALOGS IN TREATMENT OF
;    TITLE OF INVENTION:  MYOCARDIAL INFARCTION
;    NUMBER OF SEQUENCES:  6
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  BRINKS, HOFER, GILSON & LIONE
;      STREET:  NBC Tower - Suite 3600, 455 N. Cityfront
;      STREET:  Plaza Drive
;      CITY:  Chicago
;      STATE:  Illinois
;      COUNTRY:  USA
;      ZIP:  60611-5599
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.30
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/915,918A
;      FILING DATE:  21-AUG-1997
;      CLASSIFICATION:  514
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Martin, Alice O.
;      REGISTRATION NUMBER:  35,601
;      REFERENCE/DOCKET NUMBER:  8792/28
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  312-321-4200
;      TELEFAX:  312-321-4299
;  INFORMATION FOR SEQ ID NO:  5:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
US-08-915-918A-5

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 9
US-09-302-596-4
; Sequence 4, Application US/09302596
; Patent No. 6284725
; GENERAL INFORMATION:
;  APPLICANT: Coolidge, Thomas R.
;  APPLICANT:  Ehlers, Mario R.W.
;  TITLE OF INVENTION: Metabolic Intervention with GLP-1 to Improve the Function of
;  TITLE OF INVENTION:  Ischemic and Reperfused Tissue
;  FILE REFERENCE: P03660US1
;  CURRENT APPLICATION NUMBER: US/09/302,596
;  CURRENT FILING DATE:  1999-04-30
;  PRIOR APPLICATION NUMBER: 60/103,498
;  PRIOR FILING DATE: 1998-10-08
;  NUMBER OF SEQ ID NOS: 13
;  SOFTWARE: PatentIn Ver. 2.0
; SEQ ID NO 4
;  LENGTH: 30
;  TYPE: PRT
;  ORGANISM: mammalian
US-09-302-596-4

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 10
US-08-472-349-3
; Sequence 3, Application US/08472349
; Patent No. 6284727
;  GENERAL INFORMATION:
;    APPLICANT:  Kim, Yesook
;    APPLICANT:  Lambert, William J.
;    APPLICANT:  Qi, Hong
;    APPLICANT:  Gelfand, Robert A.
;    APPLICANT:  Geoghegan, Kieran F.
;    APPLICANT:  Danley, Dennis E.
;    TITLE OF INVENTION:  Prolonged Delivery of Peptides
;    NUMBER OF SEQUENCES:  7
;    CORRESPONDENCE ADDRESS:
;      ADDRESSEE:  Pfizer Inc
;      STREET:  235 East 42nd Street, 20th Floor
;      CITY:  New York
;      STATE:  New York
;      COUNTRY:  U.S.A.
;      ZIP:  10017-5755
;    COMPUTER READABLE FORM:
;      MEDIUM TYPE:  Floppy disk
;      COMPUTER:  IBM PC compatible
;      OPERATING SYSTEM:  PC-DOS/MS-DOS
;      SOFTWARE:  PatentIn Release #1.0, Version #1.25
;    CURRENT APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/472,349
;      FILING DATE:
;      CLASSIFICATION:  514
;    PRIOR APPLICATION DATA:
;      APPLICATION NUMBER:  US/08/181,655
;      FILING DATE:
;    ATTORNEY/AGENT INFORMATION:
;      NAME:  Sheyka, Robert F.
;      REGISTRATION NUMBER:  31,304
;      REFERENCE/DOCKET NUMBER:  PC8391
;    TELECOMMUNICATION INFORMATION:
;      TELEPHONE:  (212)573-1189
;      TELEFAX:  (212)573-1939
;      TELEX:  N/A
;  INFORMATION FOR SEQ ID NO:  3:
;    SEQUENCE CHARACTERISTICS:
;      LENGTH:  30 amino acids
;      TYPE:  amino acid
;      STRANDEDNESS:  single
;      TOPOLOGY:  linear
;    MOLECULE TYPE:  peptide
;    HYPOTHETICAL:  NO
;    ANTI-SENSE:  NO
;    FRAGMENT TYPE:  N-terminal
;    ORIGINAL SOURCE:
;      ORGANISM:  N/A
;      STRAIN:  N/A
;      INDIVIDUAL ISOLATE:  N/A
;      HAPLOTYPE:  N/A
;      CELL LINE:  N/A
;    IMMEDIATE SOURCE:
;      LIBRARY:  N/A
;      CLONE:  N/A
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;    POSITION IN GENOME:
;      CHROMOSOME/SEGMENT:  N/A
;      MAP POSITION:  N/A
;      UNITS:  N/A
US-08-472-349-3

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 11
US-09-333-415-4
; Sequence 4, Application US/09333415
; Patent No. 6344180
; GENERAL INFORMATION:
;  APPLICANT:  Holst, Jens J.
;  APPLICANT:  Vilsboll, Tina
;  TITLE OF INVENTION:  GLP-1 as a Diagnostic Test to Determine Beta-Cell
;  TITLE OF INVENTION:  Function and the Presence of the Condition of IGT and
;  TITLE OF INVENTION:  Type-II Diabetes
;  FILE REFERENCE:  P03987US0
;  CURRENT APPLICATION NUMBER: US/09/333,415
;  CURRENT FILING DATE:  1999-06-15
;  NUMBER OF SEQ ID NOS:  13
;  SOFTWARE:  PatentIn Ver. 2.0
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
US-09-333-415-4

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 12
US-09-585-181A-4
; Sequence 4, Application US/09585181A
; Patent No. 6358924
; GENERAL INFORMATION:
;  APPLICANT: Hoffmann, James
;  TITLE OF INVENTION: GLP-1 FORMULATIONS
;  FILE REFERENCE: X-11368
;  CURRENT APPLICATION NUMBER: US/09/585,181A
;  CURRENT FILING DATE:  2001-08-22
;  PRIOR APPLICATION NUMBER: US 60/067,600
;  PRIOR FILING DATE: 1997-12-05
;  NUMBER OF SEQ ID NOS: 5
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: AMIDATION
US-09-585-181A-4

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 13
US-09-209-799D-10
; Sequence 10, Application US/09209799D
; Patent No. 6380357
; GENERAL INFORMATION:
;  APPLICANT: Hermeling, Ronald
;  APPLICANT:  Hoffmann, James
;  APPLICANT:  Narasimhan, Chakravarthy
;  TITLE OF INVENTION: GLUCAGON-LIKE PEPTIDE-1 CRYSTALS
;  FILE REFERENCE: X-10242
;  CURRENT APPLICATION NUMBER: US/09/209,799D
;  CURRENT FILING DATE:  1998-12-11
;  NUMBER OF SEQ ID NOS: 29
;  SOFTWARE: PatentIn version 3.0
; SEQ ID NO 10
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Artificial
;   FEATURE:
;   OTHER INFORMATION: synthetic construct
US-09-209-799D-10

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
          ||||||||||||||||||||||||||||||
Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 14
US-09-975-905-1
; Sequence 1, Application US/09975905
; Patent No. 6388053
; GENERAL INFORMATION:
;  APPLICANT: Galloway, John  A
;  APPLICANT:  Hoffmann, James A
;  TITLE OF INVENTION: Glucagon-Like Insulinotropic Peptides, Compositions and Methods
;  FILE REFERENCE: X-9332E
;  CURRENT APPLICATION NUMBER: US/09/975,905
;  CURRENT FILING DATE:  2001-10-12
;  PRIOR APPLICATION NUMBER: 09/573,809
;  PRIOR FILING DATE: 2000-05-18
;  NUMBER OF SEQ ID NOS: 1
;  SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
;   LENGTH: 30
;   TYPE: PRT
;   ORGANISM: Homo sapiens
;   FEATURE:
;   NAME/KEY: MOD_RES
;   LOCATION: (30)..(30)
;   OTHER INFORMATION: The arginine residue at position 30 is modified so as to replace
;   OTHER INFORMATION: the terminal carboxyl group with an amine.
US-09-975-905-1

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

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Db      1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


RESULT 15
US-09-505-991-1
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; Sequence 1, Application US/09505991
; Patent No. 6403361
;   GENERAL INFORMATION:
;        APPLICANT: Wagner, Fred W.
;                   Stout, Jay
;                   Henriksen, Dennis
;                   Partridge, Bruce
;                   Manning, Shane
;        TITLE OF INVENTION: Enzymatic Method for Modification of
;                            Recombinant Polypeptides
;        NUMBER OF SEQUENCES: 26
;        CORRESPONDENCE ADDRESS:
;             ADDRESSEE: Merchant & Gould
;             STREET: 3100 No. 6403361west Center
;             CITY: Minneapolis
;             STATE: MN
;             COUNTRY: USA
;             ZIP: 55402
;        COMPUTER READABLE FORM:
;             MEDIUM TYPE: Floppy disk
;             COMPUTER: IBM PC compatible
;             OPERATING SYSTEM: PC-DOS/MS-DOS
;             SOFTWARE: PatentIn Release #1.0, Version #1.30
;        CURRENT APPLICATION DATA:
;             APPLICATION NUMBER: US/09/505,991
;             FILING DATE: 17-Feb-2000
;             CLASSIFICATION: <Unknown>
;        PRIOR APPLICATION DATA:
;             APPLICATION NUMBER: 08/520,485
;             FILING DATE: <Unknown>
;        ATTORNEY/AGENT INFORMATION:
;             NAME: Carter, Charles G.
;             REGISTRATION NUMBER: 35,093
;             REFERENCE/DOCKET NUMBER: 8648.32-USD1
;        TELECOMMUNICATION INFORMATION:
;             TELEPHONE: 612-332-5300
;             TELEFAX: 612-332-9081
;   INFORMATION FOR SEQ ID NO: 1:
;        SEQUENCE CHARACTERISTICS:
;             LENGTH: 30 amino acids
;             TYPE: amino acid
;             TOPOLOGY: linear
;        MOLECULE TYPE: peptide
;        IMMEDIATE SOURCE:
;             CLONE: GLP1 7-36-NH2  (Glucagon-like Peptide)
;        SEQUENCE DESCRIPTION: SEQ ID NO: 1:
US-09-505-991-1

  Query Match             100.0%;  Score 155;  DB 4;  Length 30;
  Best Local Similarity   100.0%;  Pred. No. 4.2e-16;
  Matches   30;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30
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Db       1 HAEGTFTSDVSSYLEGQAAKEFIAWLVKGR 30


Search completed: January  7, 2003, 16:25:10
Job time : 16 secs
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According to the Pre Publication Rules, every patent application received by the United States Patent and Trademark Office after November 29, 2000 will be pre-published at eighteen months from the effective filing date. When the application is published the contents, including the sequences, will become prior art.

Two new databases have been created to hold the pre-published sequences:
Published_Applications_NA contains nucleic acid sequences; the search results will have the extension **.rnpb**.
Published_Applications_AA contains amino acid sequences; the search results will have the extension **.rapb**.

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